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PYROGENIC THERAPY.

WITH REMARKS ON COLLOIDAL METALS.

BY A. G. AULD, M.D., M.R.C.P.,

SENIOR HONORARY PHYSICIAN, ST. MARYLEBONE GENERAL DISPENSARY; SENIOR ASSISTANT PHYSICIAN, PRINCE OF WALES GENERAL HOSPITAL; LECTURER ON MEDICAL DIAGNOSIS IN THE NORTH-EAST LONDON POST-GRADUATE COLLEGE.

THE term "pyrogen" was first used by Burdon-Sanderson in 1875 to signify a fever-producing substance which he had prepared. Such substances, both protein and non-protein, have since then received ample recognition, though not from the therapeutic side. The subject, however, is one of high practical importance, and in many cases brilliant results may be obtained.

Early in 1915 I began the clinical investigation of various colloidal metals parenterally introduced. They were received from different sources and included those produced by both chemical and electrical methods. The first attempts were limited to subcutaneous injections, gold, platinum, silver, and copper being chiefly used. The results were meagre and uncertain. Sometimes slight elevations of temperature followed the injections. The next attempts were instigated by a consideration of the catalytic action of certain metals in relation to the oxidative processes in the peroxide-peroxidase system. It seemed conceivable that under local conditions of defective oxidation the introduction, if possible, of a new peroxidase might be beneficial, especially if there was some bar to the effective action of the natural peroxidase, which may be regarded as the iron in the haemoglobin and in the tissues. To this end I employed colloidal manganous hydroxide intravenously. The results were distinctly encouraging, and the matter is still under investigation. I also made a third series of trials in view of the well-known catalytic action of platinum, with the design of causing adsorption of toxin-antitoxin on the platinum particle introduced into the blood. If the antigen was not a soluble toxin, it might vice versa be neutralized by adsorbing the platinum. Numerous trials were made in diverse conditions, gold, silver, and copper colloids being also employed, the dosage (intravenous) varying from 2 to 10 c.cm. Favourable results were obtained, more particularly where the injection was succeeded by a rise of temperature, which, however, rarely exceeded 2° F. Cases of pneumococcal and streptococcal infections were influenced in this way, but as to the *modus operandi* it is difficult to conclude, as, except in the case of gases, the interaction of bodies adsorbed on the same surface is not characterized by evolution of heat, at least not to any very appreciable extent. There is, however, another consideration in that the metallic particles might adsorb both active (quadrivalent) oxygen and toxin, leading to combustion of the latter. The infective organism itself might also be destroyed by the active oxygen provided it adsorbed the particle so charged. It is to be remembered also that in a reducing system, as in the case of the liver, the metal would act as a reducing agent.

In the course of these investigations a bottle of colloidal platinum was opened which had been obtained from the manufacturers a year previously (May, 1915). It was perfectly transparent, of a very dark olive colour, and slightly acid to litmus. It was odourless and free from any trace of deposit. When given intravenously in the usual doses (3 to 7 c.cm.) it produced a new and severe reaction. In half an hour there was rigor, lasting for twenty minutes or longer, followed by rise of temperature to 104° or 105° F., with, in the next few hours, perspiration, sickness with vomiting (occasionally) and headache. The temperature then fell usually to subnormal. This reaction occurred alike in normal subjects and in those suffering from diseases characterized by moderate pyrexia, namely, subacute pleuritic and pneumonic conditions, and protracted paratyphoid fever. In these the fall of temperature coincided with a great improvement in the general condition. The entire syndrome exactly resembled the ague fit.

The following cases and charts are given in illustration:

CASE I.—Young woman, aged 20, admitted under me, April 14th, 1916, at the Prince of Wales Hospital, suffering from acute pneumonia and signs of pleurisy in the right side. Temperature 103°, pulse 140, respirations 60. The pneumonia cleared up, but after a week, pus containing streptococci was aspirated from the side. A portion of rib was resected on April 24th and a tube inserted. The temperature then fell to 99°-100°; after five days it rose again to 103°. On May 2nd, when the temperature had temporarily fallen to 99.8°, 4 c.cm. of the colloidal

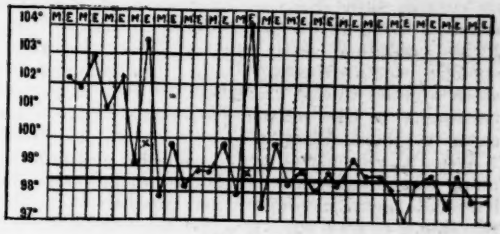

CHART 1.

platinum was given intravenously (marked by ×). This was followed by shivering and rise of temperature to 103.6°, perspiration, headache, and sickness. After six to eight hours, fall of temperature which reached 97.8° next morning, with great amelioration of the symptoms. After four days a second injection of 5 c.cm. was given, followed by rise of temperature to 104.4°, fall to 97.4° with rapid recovery.

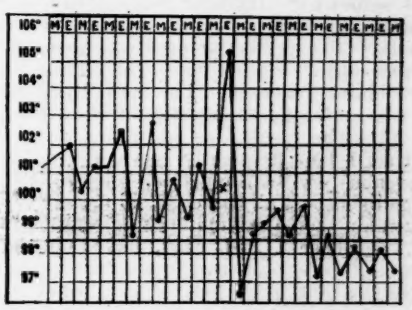

CHART 2.

CASE II.—Man, aged 31. Admitted October 7th, 1916, with subacute pleurisy, right side, and pulmonary congestion over lower half of left lung. Temperature on admission 102°, pulse 116, respirations 32. Sputum contained pneumococci, also the fluid withdrawn from the pleural cavity. Temperature remittent. Rapid recovery after the injection (Chart 2, ×).

CASE III.—Man, aged 40, seen September 30th, 1916, suffering from left-sided pleurisy with effusion, of a subacute type, with signs of consolidation. Sputum abundant, containing pneumococci. Effusion diminished, but patient continued ill, temperature 99° to 101° F. After

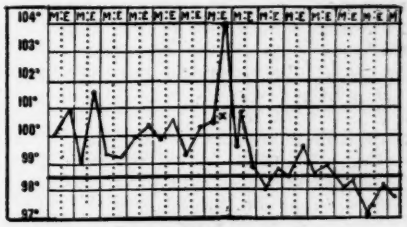

CHART 3.

about three weeks (on October 18th) he received an injection of 5 c.cm. The temperature rose to 104° F., but instead of falling to subnormal in the usual time, fell to 99.8°, with a secondary rise to 101° F. on the following day. On the third day it became subnormal, and a speedy recovery ensued.

During the cold stage the blood pressure rises from 10 to 20 mm., and thereafter during the hot stage it falls to about the same extent below its normal level. The temperature reaches its height in two to four hours. Leucocytosis sets in during the rise, and may continue for forty-eight hours. After the critical fall in temperature the pulse-rate and respirations may show a sharp drop in frequency, but sometimes the decline is gradual. Facial herpes may follow the treatment. These reactions were not obtained in the acute stage of pneumonia or pleurisy, nor was benefit derived. Instead of a rise, a fall in temperature of several degrees may take place (negative phase), with subsequent return to the original level, or nearly so.

At the same time as these results were obtained, Jobling and Petersen,[1] and some others in the United States were employing the method of intravenous injection of typhoid vaccine which had been introduced in 1914 by Kraus and Ichikama in the treatment of typhoid fever. To Kraus, however, belongs the credit of showing

that precisely similar effects were obtainable by the use of *B. coli* vaccine, and that therefore there was nothing specific about the treatment. Miller and Lusk[2] reported striking results in arthritis, and Engman and McGarry[3] in certain skin diseases by means of the vaccine, the reaction being in every respect identical with that which I had obtained with the colloidal platinum. "Non-specific vaccine therapy" and "protein shock therapy" were applied to the procedure. I can certainly add my testimony to the remarkable effects of the treatment in cases of recent arthritis.

When the supply of active colloidal platinum I had been using was nearly exhausted I was unable to obtain any colloidal metallic preparation capable of producing the reaction. It was not until September, 1917, I obtained a specimen of colloidal silver, which, in doses of 3 to 5 c.cm., acted with particular intensity, even more so than the platinum colloid. Being informed by the manufacturers that this silver was protected in a special manner, I requested them to send me the protective suspension exactly as used, which they willingly did. On trying it clinically, I was somewhat surprised to find that it reproduced very faithfully the effects of the colloidal silver itself, bulk for bulk. The protective used was given as veal peptone 0.4 per cent., with 1 per cent. glucose. It gave a violet biuret reaction. The veal "peptone," of course, was the active agent, as the effect of the glucose alone was nil. The result was surprising also in view of the fact that I had frequently given larger doses of peptone intravenously without reaction. Such a discovery naturally led me to suspect all the colloidal metals supplied, as they all contain some albuminous substance as protective. Most of those I had used, including the very active platinum, were protected by gelatin. The gelatin protective was also prepared for me and on injection it certainly produced symptoms such as headache and malaise, but without the rise of temperature found in the active platinum. Whether this latter preparation owed its properties to an unusual state of dispersion of the platinum particles, or to some accidental impurity such as hydrazin, or to some toxic body formed by hydrolysis of the gelatin after prolonged keeping, is difficult at present to decide. Examined under the ultra-microscope, the platinum was certainly in a very fine state of division, and showed active Brownian movements. Although doubt is thus thrown on the colloidal metals, it cannot be affirmed that they are clinically inactive, as they may certainly produce results which are not accompanied by high temperature reactions. It is, however, very desirable that they be issued in a purer and more standardized form.

If the pyrogen which produced the reactions was not colloidal platinum it matters little therapeutically, as all pyrogenic substances in appropriate doses produce the same effects, whether killed bacteria, proteoses, nucleic acid, or protected colloidal metals, to mention only a few.

How is the reaction brought about? This is a disputed point. The minute quantity of certain of the pyrogenic substances necessary, and the apparent possibility of producing in experimental animals similar symptoms by such inert (non-protein) substances as kaolin and agar, would seem to favour the view which has recently been elaborated from a large number of experiments by Novy and De Kruif,[4] that the matrix of the pyrogen is in the plasma, that it is always one and the same substance, namely, anaphylatoxin, and the antigen merely serves to evolve it. This is the reverse of the split protein theory of Friedberger and Vaughan.

The favourable effects (which in a considerable percentage of the cases means the termination of the disease by crisis) have been variously ascribed to leucocytosis, to rapid mobilization of antibodies, to stimulation of the non-specific ferments of the serum (protease and lipase), and alteration in the ferment-antiferment titre. Teague and McWilliams[5] in an experimental investigation have not been able to confirm these as causal agents. They suggest an active passage of bacteriolytic substances from the blood into the lymph spaces which traverse the local area or areas of infection. Doubtless various factors are at work, but without the pyrexia there is no benefit.

Under present conditions, typhoid vaccine is probably the best pyrogen to use. Nucleic acid (2 per cent.) is not always available in a reliable form, and the same applies to albumose. From fifty to two hundred and fifty million of killed typhoid bacilli are injected intravenously, according to the strength of the patient and the existing state of the temperature. In apyrexial cases, as in many of the arthritics, the dosage should be greater than in cases of pyrexia. The treatment is specially adapted to sluggish cases of localized infective diseases, with low or moderate pyrexia. Little benefit results unless the full reaction is induced, and rarely more than one injection is necessary. An overdose is indicated by dyspnoea, cyanosis and diarrhoea. The injection should not be given while the temperature is high. Heart disease, high blood pressure, and rigid arteries are contraindications. With care in the selection of cases, the treatment is not dangerous and it is not necessary to produce "shock," nor is the expression "shock" therapy in my view desirable. As an antidote to this, I have used the prefix "pyrogenic."

It is a pleasant duty to acknowledge my indebtedness to Professors Bayliss and Donnan of University College, who have kindly granted me opportunities of consulting them in respect of certain problems presented by colloids and electrolytes.

REFERENCES.

[1] *Journ. Amer. Med. Assoc.*, June 3rd and August 7th, 1916, pp. 1753 and 515. [2] Ibid., June, 1916, p. 1756. [3] Ibid., December 9th, 1916, p. 1741. [4] *Journ. Infec. Diseases*, May and June, 1917. [5] *Journ. of Immunology*, February, 1917, p. 167.

TREATMENT OF WOUNDS OF THE CHEST,

WITH SPECIAL REFERENCE TO INFECTED HAEMOTHORAX.

BY

MAJOR WILLIAM HUTCHINSON, C.A.M.C.

AT the beginning of the war we were interested merely in the question of diagnosis of a haemothorax and whether or not aspiration of the blood was worth while. Fortunately it did not take very long to settle this latter point, and aspiration very quickly became a routine procedure. Simple aspiration was very soon followed by replacing the aspirated blood with oxygen in order to do away with the disagreeable symptoms sometimes produced by the rapid removal of a large quantity of blood from the pleural cavity. Thus, as far as the treatment of a simple haemothorax was concerned, perfection was reached; but there were other and more serious problems to be solved, and it was in the solving of those the most striking advance was made during the past year.

The problems with which we were confronted were three in number: how to deal with an open pneumothorax; how to deal with an infected haemothorax; how to deal with a foreign body in the lung. During the three years of the war a great deal of work has been done on these problems, and I am glad to say they have been solved.

In the treatment of wounds of the chest four classes must be distinguished.

I. *A Non-infected Haemothorax or Pneumo-haemothorax.*

The treatment of a simple non-infected haemothorax or a pneumo-haemothorax consists in merely aspirating the blood from the pleural cavity. This should be carried out in all cases in which more than two fingerbreadths of dullness can be made out. In my series of 450 cases 368 were aspirated; in the remainder there was not sufficient fluid to warrant it. The aspiration is done by means of the ordinary aspirating apparatus, but there are one or two practical points which, if carried out, make the procedure easier both for the patient and the surgeon. A local anaesthetic should be injected into the skin, muscles, and pleura in order to make the aspiration as painless as possible. After the injection of the anaesthetic a tiny incision should be made through the skin so that the round cannula will not be gripped by it. In the next place it is important to use a fair-sized trocar, as small needles are very easily blocked; another advantage in using a trocar is that when the sharp obturator is removed the blunt cannula can be moved about the pleural cavity without damaging the lung. If during the aspiration the patient begins to suffer pain in the chest and shortness of breath, the trocar can be disconnected

from the bottle and a little air allowed to enter the pleural cavity, and it will then be found that more blood can be withdrawn before the pain and distress return. In commencing to aspirate a chest, especially in cases in which a quantity of air is present in the pleural cavity, the bottle should not be exhausted before the trocar is connected, but should be exhausted gradually during the whole aspiration, as the sudden evacuation of air when the tap is opened might cause alarming symptoms.

The treatment of non-infected haemothorax in which there is a large amount of blood clot requires special mention, as there is a difference of opinion as to the course to be pursued. Personally, I believe the chest should be opened, all the blood and clot removed, the pleural cavity closed and the air aspirated. I would also recommend that this be done as early as the patient's condition will permit, as then the lung will get a chance to expand before adhesions form. There are two reasons for this: first, the removal of blood and clot by aspiration is impossible, and therefore we must depend upon absorption to remove them, and as this is necessarily a slow process the lung remains compressed for a long time and adhesions between the compressed lung and the chest wall become very firm; secondly, these cases in my experience formed the great bulk of the infected ones, and I am sure had they been treated by operation in the first place they would have escaped infection.

II. *Open Pneumothorax.*

The treatment of an open pneumothorax has been greatly improved during the past year and the results obtained at the casualty clearing hospitals are very encouraging. In this condition it is important to clean the wound thoroughly, to wash out the pleural cavity with saline, and to close the chest completely. This should be done early, as the condition of shock will be relieved by the closure and the danger of infection also decreased. If the patient's condition will stand it and the foreign body is fairly accessible it should be removed. If there seems a likelihood of infection having taken place, then 3 oz. of 1 in 5,000 flavine solution should be left in the pleural cavity and the usual after-treatment of an infected haemothorax carried out.

III. *Infected Haemothorax.*

We now come to the treatment of the most serious complication of chest wounds with which we have to deal at the base in France—that is, a haemothorax which has become infected. While doing surgical work in France during 1915–16 I was impressed by the great improvement in the results obtained by the cleaning out and closing of knee-joints which had become infected over the results obtained by the old method of drainage. In reviewing the good results obtained by closing the peritoneum in cases of general peritonitis, I came to the conclusion that if the lining membrane of the knee-joint and the peritoneal lining of the abdominal cavity could look after a considerable amount of infection, the pleura ought to be able to do the same. I therefore decided to apply this principle to the treatment of an infected haemothorax, and in the beginning of 1917 I initiated the line of treatment which I shall describe below. Before describing operative technique, I wish to say one word against palliative measures in these cases. Simple aspiration in infected cases is of no avail, as in the first place it is impossible to remove all the blood from the chest by this means, and in the second place the clot, in which lies the focus of infection, cannot possibly be removed through a trocar. Again, it is impossible to sterilize the clot by any known antiseptic which can be used in the pleural cavity, and therefore the only possible means of treating these infected cases is by operation.

The method to be applied in these cases is as follows: As soon as a haemothorax is found to be infected—by that I mean clinically and bacteriologically (not merely bacteriologically)—the patient is taken to the operating room and nitrous oxide and oxygen administered. A portion of rib, long enough to allow the hand to be passed through the opening, should be removed and the blood allowed to flow out. The clot is then removed by the hand, all parts of the cavity explored, and light adhesions broken down. Then by means of large pieces of gauze on dressing forceps the remainder of blood and clot is removed. After this the cavity should be washed out with saline and again mopped out and a running suture inserted in such a way as to include the pleura and intercostal muscles. This suture should be left quite loose, so that a small quantity of some antiseptic can be poured into the pleural cavity. This antiseptic should be spread all over the walls of the cavity by means of a small piece of gauze on long dressing forceps. As soon as this has been done the running suture is drawn tight, thus closing the pleural cavity completely. The muscles and skin are then closed and a dry dressing applied.

Forty-eight hours after the operation the chest should be aspirated, thus removing a quantity of serum and air. This is done for two reasons—first, the serum by that time has lost its bactericidal properties, and then only becomes a menace; and secondly, by removing a good deal of the air from the pleural cavity a negative pressure is obtained which helps to re-expand the lung. It will be found that three or four aspirations are necessary during the course of convalescence.

The antiseptics which I have used in these cases include eusol solution, 1 in 2; a suspension of bipp in liquid paraffin in the following proportions, bipp ½ oz., liquid paraffin 6 oz.; flavine solution 1 in 5,000, and normal saline, the amount left in the chest being 3 oz. The results from 29 cases treated in this manner are as follows:

	Remained Closed.	Reopened.
Eusol	2	5
Bipp	11	4
Flavine	2	3
Saline	1	1
Total	16	13

When considering this method of treatment the question naturally arises as to what cases should be treated in this way. In answer to this, I may say that at present I am inclined to close every case, and if the patient shows signs of becoming worse after the first post-operative aspiration, then it will be time enough to drain.

There are, however, certain types of infection which lend themselves to this form of treatment better than others, as the following table will show:

	Remained Closed.	Reopened.
B. aërogenes capsulatus ...	11	3
Streptococcus	1	6
Staphylococcus	1	0
Pneumococcus	1	2
Diplobacillus	1	0
Mixed infection ...	1	2

There is one point in the technique of the treatment by drainage which I wish to point out, and that is that the constant washing of the pleural cavity in early cases is harmful. In place of this washing the occasional filling of the cavity with a eusol solution 1 in 3 and good drainage should be substituted In this way the body is stimulated to pour out serum into the cavity, which washes the pyogenic membrane from within outwards instead of merely washing its outer surface. In order to do this the patient is placed on his good side, so that the opening of the chest wall will be the highest point; a 1 in 3 solution of eusol is then allowed to flow gently into the cavity until it is filled, and then the patient is turned over and the fluid allowed to run out. This is repeated every second or third day, depending on the condition of the patient.

IV. *Foreign Body in the Lung or Pleural Cavity.*

A great deal of controversy has taken place during the past three years as to the treatment of a foreign body retained in the lung. I have had the opportunity of treating a large number of cases and have talked to a number of surgeons and physicians, and as the result of my own experience and that of others I have come to the conclusion that the question must be decided separately in three types of hospitals: the casualty clearing hospital, the base hospital in France, and the base hospital in England; and that a surgeon in one area is not in a position to dictate to a surgeon in any other area. As all my work has been done in a base hospital in France, I am only in a position to discuss the treatment which should be carried out in cases with retained foreign bodies in the lung during the interval from the time they leave the casualty clearing hospital to the time they arrive in England.

As a result of experience with 450 cases, and from reports received from other surgeons similarly situated, I

am convinced that no attempt should be made to remove the foreign body from the lung while the patient is in a base hospital in France.

Results.

In my series of 450 cases there were 27 deaths, the causes of which when examined will show the hopelessness of certain cases and will also point to one problem in surgery which has not been solved—that is, cases in which the infected haemothorax is pocketed. In these 27 cases the causes of death were as follows:

1. Septicaemia, due to pocketing	Drained.
2. Septicaemia	Drained.
3. Septicaemia	Drained.
4. Abscess of lung	Drained.
5. Pneumonia and empyema (opposite side), haemothorax	Drained.
6. Gangrene of lung	Drained.
7. Septicaemia	Drained.
8. Septicaemia	Drained.
9. Moribund, time of operation	Drained.
10. Septicaemia, due to pocketing	Closed and reopened.
11. Septicaemia, due to pocketing	Closed and reopened.
12. Septicaemia, due to pocketing	Closed and reopened.
13. Pyaemic abscesses (both lungs)	Closed and reopened.
14. Pneumonia and empyema (opposite side), haemothorax	Closed and reopened,
15. Acute gas gangrene of chest wall ...	Closed and reopened.
16. Septicaemia	Closed and reopened.
17. Septicaemia	Closed and reopened.
18. Gas gangrene of chest wall	Closed and reopened.
19. Double pneumonia	No operation.
20 Bronchopneumonia and tuberculosis ..	No operation.
21. Septicaemia	No operation.
22. Gas gangrene (one side), pneumonia and empyema (opposite side)	No operation.
23. Streptococcus (arm), mediastinitis, abscess of lung	No operation.
24. Pneumonia (opposite side)	No operation.
25. Double bronchopneumonia	No operation.
26. Secondary pulmonary haemorrhage, infected haemothorax	Drained.
27. Died on table, before operation.	

Conclusions.

1. All cases of wounds of the chest should be treated in special wards or special hospitals.

2. Careful charts should be kept which record temperature, pulse, and respirations four times a day.

3. Early diagnosis of infection is important.

4. Every case in which there is more than two finger-breadths of dullness should be aspirated.

5. Cases of open pneumothorax should be closed as early as possible.

6. Cases in which there is a large amount of clot in the chest should be opened, blood and clot evacuated, and the chest closed. This should be done as early as possible.

7. Cases in which the haemothorax is found to be infected should be opened, washed out, and closed, some antiseptic being left in, preferably an emulsion of bipp in liquid paraffin.

8. Post-operative aspirations must be done in all closed cases the first forty-eight hours after operation.

9. No attempt should be made at the base in France to remove a foreign body from the lung.

THE MODERN TREATMENT OF EMPYEMA BY ANTISEPTICS.

By R. ATKINSON STONEY, F.R.C.S.I.

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For all practical purposes cases of empyema may be divided into two classes—(*a*) those easily cured by simple surgical methods, and (*b*) those difficult or impossible to cure even by such extensive surgical operations as Estlander's or Schede's thoracoplasty or pulmonary decortication.

This difference is chiefly due to the fact that in the latter cases the condition has become chronic, either through neglect or inefficient surgical treatment in the early stages, with the result that the lung and diaphragm have become covered by granulation tissue, which by its further development into fibrous tissue renders the walls of the pus-producing cavity rigid so that they cannot collapse and so obliterate the cavity. Down to quite recently it has generally been believed that an empyema could be cured only when the cavity of the pleura was obliterated either by distension of the lung to meet the chest wall, or collapse of the chest wall to meet the lung; the first process occurring in those cases that were easily cured, and the latter being brought about by Estlander's or Schede's operation in the cases which resisted ordinary treatment.

That this idea was wrong is, I think, proved by the histories of the following three cases treated in France last year:

Case I.

Arab, aged 17, found during the inspection of an outlying hospital, with an empyema of the right side which had burst through the chest wall in two places—in the fourth space in the nipple line and in the sixth space in the anterior axillary line. He had an evening temperature of 102° to 104°, and was in a very weak and emaciated condition. On May 19th a piece of the eighth rib was removed in the scapular line, and the pleura opened. One pint and a half of odourless pus was evacuated, and the pleural cavity was freely douched with Dakin's solution and hot water, and a large double drainage tube inserted. He was dressed daily and syringed with Dakin's solution and hot water. The discharge, which was at first very copious, rapidly diminished, and at the end of four weeks there was only a little serous discharge on the dressings, though there was still a large intrapleural cavity, shown by the fact that from 6 to 8 oz. of lotion could be injected without pressure or discomfort. The drainage tube was left out and the wound closed without rise of temperature; on two or three occasions during the following week a probe was inserted, but, as only a little clean serum escaped and there was no further rise of temperature, the wound was allowed to cicatrize, and the patient was discharged in the beginning of July. The physical signs showed that the lung was still contracted and that there was a considerable pneumothorax.

Case II.

An Arab, aged 18. This case was very similar; he had an empyema of the left side which had burst through the chest wall and formed a large subcutaneous abscess over the sixth space in the nipple line. On June 1st a piece of the eighth rib was removed in the scapular line, and when the pleura was opened nearly four litres of thin, foul-smelling pus escaped. The pleural cavity was douched with Dakin's solution and hot water and a large double drainage tube inserted. The further history and treatment was the same as the previous case. In three weeks the discharge had lessened so much that the drainage tube was left out and the wound closed. Here again a probe was passed on a couple of occasions and only a little serum escaped. He was discharged healed, early in July.

Case III.

A French soldier, aged 30, said that he had been partially buried by an explosion nine months previously. An operation was performed and a tube put into his left side, from which there was daily discharge up to the time he was seen by me, last June, when he had a sinus in the posterior axillary line, about the level of the eighth rib, through which a probe could be passed for six to eight inches. The discharge was copious and there was a slight evening rise of temperature. The sinus was enlarged, a drainage tube inserted, and the cavity washed out daily with Dakin's solution and hot water. The discharge lessened rapidly and the temperature became normal; the tube was left out at the end of three weeks, and the discharge being only serous the wound was allowed to close and the patient was discharged from hospital at the end of five weeks, healed and apparently well, though he still had a considerable pneumothorax.

The first two cases were neglected acute empyemas which had been allowed to burst externally, in fact the "empyema of necessity" of the early writers; and the third case was probably a haemothorax, which had been drained and allowed to become septic. In all three cases the result of treatment came as a great surprise, as it had been thought that an extensive operation would have been necessary; the drainage and douching was only done as a preliminary measure to get the cases as clean as possible before undertaking an Estlander's operation.

Since treating the above cases and returning to Dublin, I have read of Tuffier's treatment of empyema by the Carrel-Dakin method. He claims the same results—that is, that the discharge gradually lessens and finally is only serous, and as soon as this occurs, or it is proved that the discharge is sterile or almost so, by bacteriological examination, he removes the tubes and allows the wound to close. He draws attention to the fact that the patient is cured and the thoracotomy wound closed, while there is still a free space in the pleural cavity, and this is the real crux of the whole subject; for up to this all our efforts have been directed to obliterating this space, as it was considered impossible to obtain a cure of a case of empyema until this space had ceased to exist. In future our efforts must be directed to sterilizing the walls of this space, which has been proved to be possible, perhaps not in every one of these cases, but certainly in a large number of them. Whether we attempt to do this, as outlined in the above cases, by frequent washing with some reliable antiseptic by

means of a syringe, or by more frequent washings, as in the Carrel-Dakin treatment, will depend on various factors, such as personal predisposition, nursing facilities and idiosyncrasies of the patient. It would seem natural to suppose that quicker and surer results could be obtained by the two-hourly flushings of Carrel-Dakin than the daily or twice daily flushings by syringe when dressing the case.

Conclusions.

1. Most if not all cases of empyema can be cured without resort to such mutilating and dangerous operations as thoracoplasty and pulmonary decortication, because it is not necessary to obliterate the pleural space, but merely to render its walls sterile, and this is possible by frequent washings with hypochlorite solutions.
2. Flushing of the pleural cavity with hypochlorite solution is not dangerous provided there is a free exit for the fluid, as by the use of a double drainage tube.
3. The earlier this treatment is instituted the sooner and more surely will a cure be obtained, as there will be less formation of granulation and scar tissue, and the organisms will not have had time to entrench themselves deeply in the tissues, and will therefore be more exposed to the action of the antiseptic.
4. The drainage should be free, and the opening should not be valvular; if a Carrel tube is used it should be introduced as far as possible into the pleural cavity through a large drainage tube, so that the fluid, starting at the most remote part of the septic space, passes down over its walls and escapes freely between the Carrel tube and the drainage tube.
5. The opening is most suitably made by removing one inch of the eighth rib in the scapular line, as this is the most dependent spot for practically all positions, and there is no fear of its closure by the rising diaphragm.

PARALYSIS FOLLOWING ARTERIAL INJURIES.

BY

CAPTAIN HAROLD BURROWS, R.A.M.C.(T.F.).

AMONG the accidents of war injury of a main blood vessel is common, yet little inquiry appears to have been made into the effects upon the structures which lie within the area of distribution of the wounded vessel. Injury of a main artery—for example, the common femoral, the popliteal, or the brachial—may produce immediate and remarkable consequences in the affected limb. As the ensuing symptoms are paralytic they have been apt to be regarded either as "functional" or as arising from concomitant nerve lesions, for, owing to the close association and common anatomical relations between the vessels and the nerves, simultaneous injuries of the structures are of frequent occurrence.

As the following cases will show, extensive paralytic phenomena may follow a vascular lesion independently of any direct traumatism of the main peripheral nerves. That these sequences are not infrequent is shown by our experience at the — General Hospital, and also by knowledge gained at the other military hospitals in the neighbourhood.

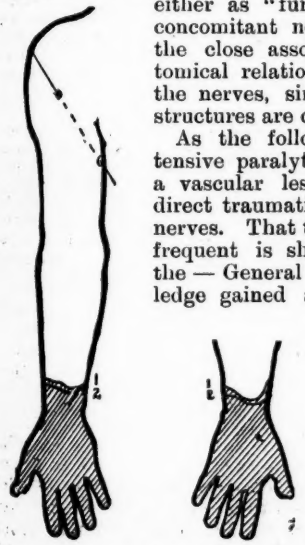

FIG. 1.—Shaded area shows extent of loss of sensation to light touch, the upper limit of which is marked by 1; 2 defines the upper limit of loss of sensation to pin-pricks.

CASE I.

Signr. S. H., wounded on May 26th, 1917, was admitted on June 8th. A note taken on June 14th states that there was an entry wound in the right arm 3 in. below the tip of the acromion process and an exit at the middle of the inner surface of the arm. There was no injury to bone. The note from the casualty clearing station was: "Brachial artery tied, and temporary suture of median nerve."

The patient complained of pain in the hand and fingers and a "tingling, horrible sensation" in the same area. He said his "funny bone" was tender, and that pain shooting down to the fingers could be caused by pressure applied to the ulnar nerve at the elbow.

There was anaesthesia to light touch and pressure, as shown in Fig. 1, and it is notable that the loss of pressure sense was slightly greater than the loss to light touch. There was also complete loss of sense of position in the wrist and all joints below the wrist. There was absolute paralysis of all muscles below the elbow. The right hand was warmer than the left. The radial pulse could be felt, but the pressure within it was too low for accurate estimation with Riva-Rocci apparatus. A pressure of less than 20 mm. of mercury was sufficient to obliterate the pulse. The maximum systolic blood pressure in the left arm was 118.

There can be no question that the clinical symptoms in this case cannot be accounted for by peripheral nerve injury, for the musculo-spiral escaped damage, and yet the forearm muscles were completely paralysed.

CASE II.

Q.M. Sergt. W. G. D. Wounded on June 23rd, 1917, was admitted on June 25th, under the care of Captain E. T. Tatlow, R.A.M.C.(T.F.). The note from the casualty clearing station was: "Through wound of left arm and forearm, passing through bend of elbow and wounding brachial artery. Wound explored through separate incision at bend of elbow. Artery tied. Bipp dressing. Packing for serious oozing. Scalp wound cleaned."

There was a small entry wound on the inner posterior surface of the left arm, with a small exit wound on the radial side of the anterior surface of the forearm. Both wounds had been excised, bipped, and firmly plugged with gauze. There was an oblique operation wound in front at the bend of the elbow, and this also had been sutured.

The limb was fixed on an internal rectangular splint. There was no injury to the bones or to the elbow-joint, the projectile having passed anteriorly to these structures. The left hand and forearm were much swollen and colder than the right hand and forearm, and there was considerable bruising in the neighbourhood of the elbow. No radial pulse could be felt. He complained of "pins and needles" in the left hand, from the wrist to the tips of the fingers. He felt this especially if he coughed, sighed, or took a deep breath.

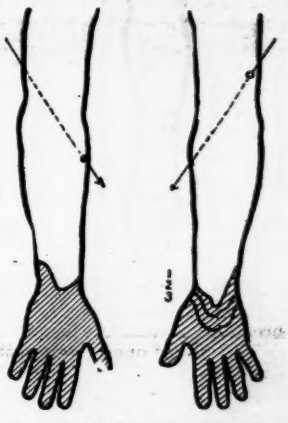

FIG. 2.—Shaded area shows loss to light touch; 2 shows upper limit of loss to pin-pricks; and 3, the upper limit of loss to deep pressure. The area of loss to light touch alone has been defined on the palmar surface owing to discomfort caused to the patient during examination of this region. The arrows show the direction of the wound.

There was "glove" anaesthesia of the left hand (Fig. 2), including the loss of appreciation of light touch, pin-pricks, pressure, tuning-fork vibrations, and sense of position; further, there was complete paralysis of all the muscles below the elbow, except the supinator longus and extensor carpi radialis longior, which were not paralysed. In this connexion it may be noted that the blood supply of these two muscles is derived from the superior profunda artery. The paralysed muscles felt hard and inelastic. On July 9th it was noted that there had been no material alteration in the loss of power or sensation since the patient's admission. The oedema had become less, but it had not disappeared, although the limb had been elevated; the hand was now warm.

In this case it is clear that the ulnar and median nerves may have been injured, but it is equally clear that the musculo-spiral escaped. Consequently, some factor additional to peripheral nerve injury is required to explain the symptoms.

CASE III.

Pte. S. U. F., wounded August 23rd, 1917, was admitted on August 25th under the care of Captain J. H. C. Fegan. He presented three wounds: (1) Gunshot wound of left leg, with compound fracture of left tibia and fibula; (2) a large vertical wound in the left deltoid region, tightly plugged with gauze, over which the skin was sutured; (3) a long vertical wound on the inner side of the left arm, also plugged tightly with gauze and sutured. The notes accompanying the patient from the casualty clearing station did not mention any arterial injury.

The patient had pins and needles in the left hand for the first twenty-four hours, but this symptom disappeared. He complained of a "feeling of pressure" in the hand. The radial pulse could not be felt. There was moderate oedema of the forearm and hand, and the muscles felt hard, inelastic, and tender. The fingers and thumb were flexed at all the joints.

The wrist was neither flexed nor extended. All the muscles below the elbow were completely paralysed. Sensation for light touch, pin-pricks, and pressure was lost up to the level of the wrist (Fig. 3).

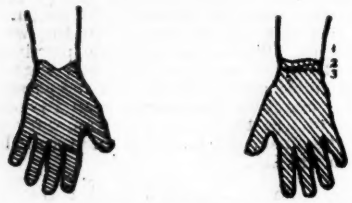

FIG. 3.—Shaded area represents loss of sensation to pin-pricks; 2 marks the upper limit of anaesthesia to pressure, and 3 the upper limit of anaesthesia to light touch. On the palmar surface the loss to pin-pricks alone was investigated, as the examination of this region caused the patient to suffer pain.

CASE IV.

Pte. E. G. was wounded on May 3rd, 1917. The note from the casualty clearing station was: "Femoral vessels tied." When admitted under the care of Captain J. H. C. Fegan there was a vertical operation wound on the antero-internal aspect of the right thigh, and a similar one at the same level over Hunter's canal. A large drainage tube connected these two wounds. The note taken on May 31st recorded an extensive area in the leg and foot, as shown in Fig. 4, where sensation to light touch

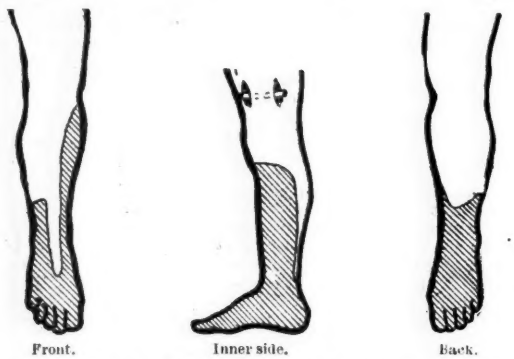

FIG. 4.—The shaded area represents loss of sensation to light touch.

was lost (other sensations were not tested). There was persistent foot-drop with rectangular talipes. The peronei were hard, bulky, and weak, but not completely paralysed. The extensor longus hallucis and all the other anterior leg muscles were weak, though not completely paralysed.

In this case, imperfect as the record is, it is still clear that there is a muscular weakness and a loss of cutaneous sensibility that cannot be accounted for by any direct injury of the peripheral nerves.

CASE V.

Pte. T. P., wounded on June 13th, 1917, was admitted on June 16th, under the care of Captain Graham-Jones, R.A.M.C. The note from the casualty clearing station was: "Gunshot wounds left thigh (three wounds). Haemorrhage. No posterior tibial pulse. All wounds excised. External branch from popliteal artery ligated. Also perforating branches of the femoral. Bipp and paraffin gauze. *Progress:* Foot cold and white for twenty-four hours, then signs of returning circulation; can now feel toes. Dressed. Slight discoloration over instep and tips of toes. Wound healthy."

On admission to a general hospital on June 16th, under the care of Captain Graham-Jones, the toes and a portion of the dorsum of the foot were cold and discoloured. Tight gauze packing in popliteal wound. No pulsation was felt in dorsalis pedis or posterior tibial. The whole left leg was swollen and hard; the foot was warm except in the discoloured area. There was no loss of sensation to pin-pricks except in area of gangrene, but there was absolute paralysis of all muscles below the knee except the soleus and gastrocnemius, and these were capable of the slightest movement only. Amputation above the knee was performed on June 27th.

Examination of the leg showed a striking change of colour of all the muscles of the leg, which were pale, and in their lower portions had hardly a tinge of red. The gastrocnemius was affected in its lower two-thirds and the soleus in its lower third. The upper portions of these muscles were of normal colour and looked healthy, and the transition from this healthy muscle to the pale altered tissue below was gradual, the muscle in the intermediate zone having a streaky appearance, bundles of red fibres being interspersed among bundles of discoloured fibres.

The pallor of the affected muscles was striking and at once arrested attention as an abnormal condition. Portions of these muscles were sent to Captain A. W. Stott, who prepared sections of them for microscopical examination. His report is given later.

CASE VI.

Pte. H. T. was wounded on June 16th, 1917. The note from the casualty clearing station was: "Penetrating wound of right thigh just below Poupart's ligament. Artery three-quarters severed; artery ligated. Bled freely from lower part. Pulse felt in left foot."

The note made on June 24th recorded that the patient had early gangrene of the toes and the neighbouring portion of the foot. There was absolute paralysis below the knee, and the muscles felt hard and stiff. Amputation was performed above the knee. The muscles of the leg were pale and bloodless. Unfortunately no observations were made on the cutaneous sensibility in this case.

CASE VII.

Shoeing-smith J. S. was wounded on July 17th, 1917. The note from the casualty clearing station was: "Shell wound of thigh, left, July 18th, 1917. Wound excised; foreign body removed; superficial femoral and deep femoral veins divided—ligatured; bipped and sutured." He was admitted on July 19th under the care of Major Moffat. The note made on the following day recorded a transverse sutured wound 7½ in. long on the front of the left thigh, 4 in. below the centre of Poupart's ligament. There were no gross signs of inflammation in the neighbourhood of the wound, and the patient seemed fit except for his pallor; he said that he had lost much blood when wounded. No pulsation could be felt in the posterior tibial or dorsalis pedis of the wounded limb, but blood was circulating in the foot and toes, and there was no gangrene or blistering.

The patient complained much of subjective sensation in his left foot and leg, which he described in these words: "My foot feels as if it were being drawn up tight in an onion net: the feeling works up into my ankle and shin, and keeps me from sleeping; it is a most unpleasant sensation; you would think my foot was coming off."

There was extensive impairment of sensibility of the leg and thigh, as shown in Fig. 5, but it was particularly noticeable

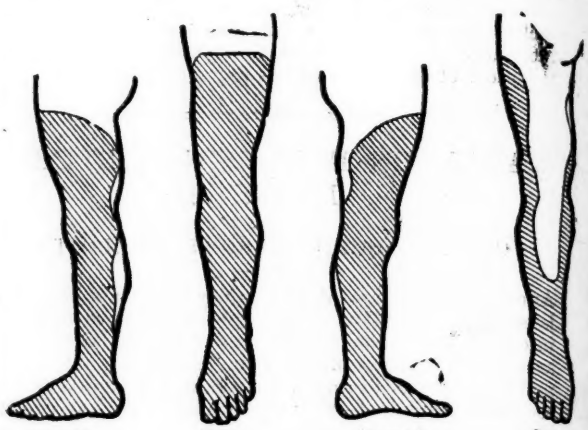

FIG. 5 (Case VII).—Shaded area represents loss of sensation to pin-pricks.

that the boundary of the anaesthetic area was not perfectly definite—that is to say, there was an intermediate zone, perhaps 1 in. wide, in which pin-pricks sometimes were and sometimes were not felt. There was a small area on the anterior surface of the thigh in its lower third where the anaesthesia was similarly incomplete. There was loss of sense of position in all joints distal to the tarsus. Deep pressure sense was lost up to a level about 2 in. above the ankle-joint. The boundary line of this loss was slightly irregular—that is to say, it was serrated, but might be described as belonging to the stocking type. There was complete paralysis of the extensor longus hallucis, and of all the flexors of the toes. There was very slight power in the long extensors of the outer four toes. The tibialis anticus and peronei were weak but not completely paralysed. The gastrocnemius, soleus, and tibialis posticus were nearly normal, though there was some obvious weakness in these also.

CASE VIII.

Sapper T. T., wounded on July 31st, was admitted, under the care of Major Moffat, on August 1st. He stated that he did not lose much blood after being wounded, and that no tourniquet was applied. There was an entry wound on the outer side of the left knee-joint, level with the lower end of the patella and situated over the biceps tendon; there was no exit wound. There was copious effusion into the knee-joint, and a systolic bruit could be heard in the popliteal space. The posterior tibial and dorsalis pedis could be felt pulsating. On August 5th the leg was oedematous. He had "pins and needles" in the foot, and there was an extensive area of loss of sensibility, as shown in Fig. 6. The gastrocnemius and soleus were active, and there was perhaps the slightest amount of activity in the tibialis anticus; but with these exceptions there was absolute paralysis of all muscles below the knee.

The knee-joint was needled and dark blood withdrawn; the pathologist (Captain A. W. Stott) reported: "No increase of polymorphs. No organisms seen."

On August 6th the popliteal artery and vein and the anterior and posterior tibial arteries were ligated. The artery had been wounded at its bifurcation. The resulting arterial haematoma communicated with the knee-joint through a rent in the posterior part of the capsule. The internal and external popliteal nerves were seen to be uninjured. On August 7th some recovery of sensation on the dorsum of the foot was noted, but sensation was still absent from the sole. Sensation in the left foot had completely returned on August 8th, and all movements had returned, though the muscles previously paralysed were still weak. By August 13th the muscles had recovered almost completely, and their contractions were strong, except that some weakness remained in the gastrocnemius and soleus. This weakness may have been reflex in origin, being merely an unconscious attempt to maintain rest in the popliteal region.

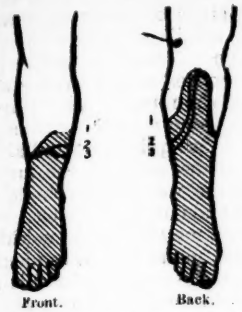

FIG. 6 (CASE VIII).—The shaded area represents loss to light touch; 2 is the upper boundary of loss to light pressure; 3 the upper limit of loss to pin-pricks.

CASE IX.

Lce.-Cpl. H. W., wounded on August 5th, was admitted on the following day. There were small entry and exit wounds in the left arm, on the inner side, just above the elbow. The projectile had passed in an antero-posterior direction close to the bone. He said that he lost a great deal of blood when he was hit—the blood "pumped out." A tourniquet was applied over the wound, and not removed until about one and a half hours later.

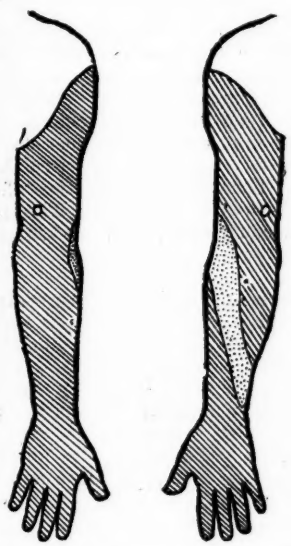

FIG. 7 (CASE IX).—The shaded area represents loss to pin-pricks and light touch. The dotted area marks a partial loss of sensation to pin-pricks. The wounds of entrance and exit are indicated by small circles.

He complained of throbbing at the level of the wound. No bruit could be heard over the artery. The radial pulse could be felt, but it was weak and soft. The ulnar and median nerves had been injured. There was anaesthesia to light touch and pin-pricks extending up the arm to the shoulder on the outer side, and to the level of the anterior axillary fold on the inner side. This loss was complete except over the area extending from the outer surface of the lower third of the arm, down the back and ulnar side of the forearm to the wrist—as shown in Fig. 7. Over this area sensation was impaired, and a certain number of pin-pricks could be felt, while a certain number were not felt.

The interesting point in Case IX is that the anaesthesia extended far above the level of the vascular and nerve injury. We may explain the phenomenon by referring it to a "functional" origin, if that is any explanation. Or we may regard the condition as being reflex in nature, but we can hardly attribute it to ischaemia.

CASE X.

Cpl. W. J. B. B., wounded on August 21st, 1917, was admitted, under the care of Captain J. H. C. Fegan, on August 23rd. The note taken on the following day recorded a small entry wound in the left leg on a level with the lower border of the patella and situated on the outer side of the back of the leg just behind the tendon of the biceps. There was no exit wound. The moment he was hit he lost all sensation in the leg, his first thought being that the leg had been blown off. There was considerable oedema of the leg, and he stated that if the leg were allowed to hang down it swelled and became very painful. The muscles did not feel hard. No distinct difference could be felt in the surface temperature of the two feet. An arterio-venous aneurysm had formed in the popliteal region, as shown by a palpable thrill and a loud systolic murmur and venous hum. The posterior tibial could be felt pulsating, but the amplitude of its pulse wave was small and the tension low.

The patient had no "pins and needles" or other subjective sensation in the leg while he was at rest in bed. Sensation to pin-pricks and light touch was lost over an area which, as shown in Fig. 8, extended far above the level of the wound. It was not complete, for there were areas lower down where both light touch and pin-pricks could be appreciated. The sole of the foot and front of the leg contained such areas. The upper border of the general area of anaesthesia was indefinite, there being a zone in which some pin-pricks were felt, while others were not noticed. The muscles of the leg and foot were paretic, and apart from weak contractions of the gastrocnemius, tibialis anticus, and long extensor of the toes, there was no muscular power in the leg at all. By August 25th the oedema of the leg had disappeared, muscular power had increased, and sensation was returning.

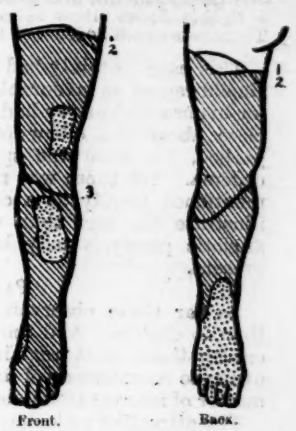

FIG. 8 (CASE X).—1 represents loss to light (shaded area), 2 is the upper limit of loss to pin-pricks, 3 the upper limit of loss to light pressure. In the dotted areas loss of sensation to pin-pricks was incomplete, deep pricks being appreciated, while only a percentage of light pricks could be felt.

SYMPTOMS.

From these cases it will be seen that the main symptoms are:

1. Subjective sensations in the distal part of the affected limb.
2. Anaesthesia, more or less of the "stocking" or "glove" type, and involving all kinds of sensation, including light touch, pin-pricks, and deep pressure.
3. Muscular paralysis.
4. In certain cases hardness and inelasticity of the muscles.
5. Oedema.

In all of the cases in which no arterial pulse could be felt distally to the injury (I to VIII) the patients complained of subjective sensations, which they described in various terms, but to which we may refer as "pins and needles." On the other hand, in the two cases (IX and X) in which a distal pulse could be felt there were no "pins and needles."

In all the cases which were tested except one there was loss of cutaneous sensibility; oddly enough, in the one (Case V) in which sensation was retained (except in the toes, which became gangrenous) there was not only gangrene of the toes, but most extensive myopathy was shown to be present in the muscles of the leg. In the two cases in which a distal pulse could be felt (IX and X), the area of anaesthesia was most extensive, and reached to a level considerably above the wound. In several of the cases the loss to pin-pricks was greater than the loss to light touch.

Motor paralysis was present in all. With one exception, in every case in which no distal pulse could be felt there was a feeling of hardness and inelasticity of the affected muscles which suggested that alterations in their composition had occurred. The exception (Case VIII) was of special interest, inasmuch as the muscular and sensory paralysis rapidly passed away after a wounded popliteal artery had been ligated together with the vein. In the two instances (IX and X) in which sensory and motor paralysis were present, while the distal pulse was not obliterated, the muscles were flaccid and soft, in contrast with the hard muscles felt in the cases of complete arterial lesion.

No case of paralysis was observed as a sequence of injury to the radial, ulnar, anterior tibial, or posterior tibial arteries. In three of the cases in the series (II, III, and V) the wounds were plugged with gauze at the time of the patient's admission to the — General Hospital, and the pressure of this packing may have played a subsidiary part in the causation of symptoms.

It is a little difficult to understand why ligature of an artery in one patient should lead to little or no evil consequences, while in another, seemingly as favourable at the time of operation, grave consequences follow.

Take the following case as an example:

CASE XI.

Pte. G. T. B., wounded on August 22nd, was admitted, under the care of Lieutenant C. N. Longridge, on August 25th. The note from the casualty clearing station was: "Compound comminuted fracture of lower end of left humerus. Brachial artery ligated. Great loss of muscular tissue."

On admission he presented a through-and-through wound above the left elbow. The original wounds had been excised, and partly stitched over gauze packs. The arm was fixed on a Robert Jones elbow splint. No radial pulse could be felt. There was much oedema of the hand, forearm, and arm.

This case certainly had many of the features which we should regard as favourable to paralysis of vascular origin, for his brachial artery had been ligated, he had a fracture close above the elbow-joint, the wounds were tightly packed, the arm was splinted, and there was copious oedema. Yet there was no paralysis at all. The case is mentioned merely as a contrast with the others and to illustrate the fact that whatever the actual cause of angiotic paralysis may be, it is not clearly defined at present.

PATHOLOGY.

So far these observations have been easier to make than to explain. And the probability is that pathological explanations must remain in abeyance for the present owing to insufficiency of data. Nevertheless, it may be a matter of interest to wander a little into the field of theory.

The attractive and simple course of attributing all the phenomena to ischaemia—to an insufficient supply of blood to the tissues—at once suggests itself, and, if we follow this course, we may describe the symptoms collectively under the title of ischaemic paralysis, and be done with all further speculation. Objections, however, to this title become apparent on close scrutiny. In the first place it involves the acceptance of a hypothesis of causation which at present is not fully established. The symptoms may be due to the small quantity of blood which is circulating, to injury of the sympathetic nerves in the vessel sheath, to the low pressure of the blood stream below the injured artery, to cold, to some other cause altogether, or to a combination of causes. Moreover, although some of the cases just described show that a paralysis similar to the so-called Volkmann's ischaemic paralysis often does follow occlusion of an artery, yet it is clear that this is not the only form of paralysis which may follow a vascular lesion.

For these reasons it appears better to adopt a general title which will not implicate us in any hypothesis other than that the symptoms are consequent upon damage to a blood vessel. Accordingly the term "angiotic paralysis" may be applied with convenience to the symptoms described in these cases.

At the outset we must assume that two factors at least take part in the causation of the symptoms. On the one hand, we may have extensive degeneration of muscle and massive gangrene, without any loss of cutaneous sensibility, except in the area of mortification, while on the other there may be widespread loss of sensation and muscular power without gangrene, without gross myopathic change, and even without obliteration of the distal pulse. From this it is clear that there is no exact correlation between the neuropathic and the myopathic symptoms.

Probably ischaemia is one of the factors, the one which is associated especially with Volkmann's myopathy. In the cases just narrated this condition has been seen only in those cases (I to VII) in which the distal pulse was obliterated, which is significant. If, however, we accept ischaemia as the cause of this myopathy, there must be at least some other cause for the flaccid paralysis and sensory loss which are to be observed after certain vascular injuries in which the artery is not completely divided or obstructed, and in which the distal pulse can still be felt. The fundamental cause in these cases seems to be the actual damage to the arterial wall or to its sheath, rather than any consequent effect upon the supply of blood to the limb. Further, it appears that an incomplete injury—that is to say, an injury in which the artery is not completely severed—is more likely to be followed by extensive sensory loss and flaccid paralysis than is a complete division or ligation of the artery. There is reason to suppose that these symptoms are reflex in nature. Accepting this to be so, we arrive at the following classification of paralysis following arterial injuries:

ANGIOTIC PARALYSIS.

Ischaemic paralysis.	Reflex paralysis.

Ischaemia.

Let us consider these two factors in detail. The first is illustrated well by Case V. Here a wound in the popliteal region was followed by absence of pulsation in the dorsalis pedis and posterior tibial arteries. The foot became cold and white, and remained so for twenty-four hours, at the end of which time there were signs of returning circulation, except in the toes and a small portion of the foot, which became gangrenous. The whole leg up to the knee was slightly oedematous; the muscles were hard and absolutely paralysed. Inspection of the muscles after amputation showed them to have undergone a striking change of colour—they were no longer red, but quite pale and almost buff-coloured. This change affected some of the muscles more than others, and the change was more complete in the distal than in the proximal ends of the muscles. What the actual change and its cause may be we do not know, though the suggestion has been made that it is identical with rigor mortis. Sections of the muscles in this case were made by Captain A. W. Stott, who gives the following report:

Pathological Report.

"Portions of the peronei and gastrocnemius muscles were cut; each showed gross pathological changes. No normal muscle fibres were seen. In sections stained by haemalum and eosin the general impression was that given by an anaemic infarct. The muscle fibres and the interstitial tissues stained a uniform pink. The fibres showed various stages of degeneration—some had almost normal striation but no nuclei; others had completely lost their striation, and appeared as granular masses. Fibres showing different degrees of change were often found next to each other. The majority of fibres appeared swollen. Some were broken up into irregular masses; others were split into longitudinal fibrillae or transverse discs. There was no hyaline degeneration, and no gross fatty change was seen. The interstitial tissue appeared oedematous, stained a faint pink with Van Gieson, and was almost cell-less. There were few capillaries. Throughout the sections there was but little trace of inflammatory reaction. The large vessels, arteries, and veins contained blood, not clot, and appeared normal."

These cases (I to VII) represent the first main variety of angiotic paralysis. The condition is, for the most part, a muscular phenomenon; it is well known as Volkmann's ischaemic paralysis, following especially fractures about the elbow-joint, and may be seen apart from any material sensory defects. The damaged muscles do not recover, and any resumption of function which comes about is attributable to the fact that portions of the muscles, especially the proximal portions, usually escape and are capable of limited activity later on.

Summary Concerning Ischaemic Cases.

1. An arterial injury with obliteration of the distal pulse.
2. Subjective sensation of "pins and needles."
3. Muscular paralysis; the muscles being hard and inelastic to the touch.
4. Anaesthesia of a "stocking" or "glove" distribution, confined to the portion of limb which is distal to the injury, and involving all forms of sensation.

Reflex Paralysis.

The cases (VIII to X) in which the paralysis has seemed to be of a reflex nature have the following characteristics:

1. An arterial injury without complete blockage of the vessel.
2. Absence of "pins and needles" sensation.
3. Flaccid paralysis of the muscles which do not feel hard and inelastic.
4. Widespread loss of cutaneous sensibility, extending in two instances well above the level of the wound.

These cases give the impression of being less organic, if one may put the matter in that way, than the ischaemic ones. Case VIII showed almost complete recovery within two days of an operation which involved ligation of the popliteal, anterior and posterior tibial arteries and veins. Case X improved up to a certain point with no treatment other than rest in bed. Case IX was not under observation long enough for any improvement to be observed.

The hypothesis that these cases are of a reflex nature

has been adopted partly for convenience of argument, but largely because this explanation seems plausible. The fact that the anaesthesia in two of the cases extended well above the wound has led to the suggestion that it is of a functional nature. But even if we call it functional, does that carry us any further? Several controls have been tried, and patients with fractures, wounded joints, and other bad wounds of the limbs were tested, but in no case was a stocking anaesthesia discovered except in those who had arterial lesions.

Whatever the cause of the paralysis may be in these cases, it can hardly be attributed to ischaemia. In this connexion, it may be well to recall the cerebral disturbances which are apt to follow sudden obliteration, by operation or otherwise, of the lumen of the common carotid or internal carotid artery. These disturbances, severe and not rarely fatal, surely cannot be attributed to ischaemia, seeing what a liberal provision of collateral channels is present for supplying the brain with blood, and considering also the rapidity with which the cerebral symptoms develop.

CASE XII.

Pte. O. K., wounded on September 1st, 1916, was admitted on September 9th. He had been shot through the right neck. He stated that his left arm became paralysed at the instant he was hit; in fact, he thought the wound was in his arm. The projectile had clearly divided the internal carotid artery.

It is difficult to believe, in the absence of better evidence, that such an immediate paralysis could be brought about by ischaemia or embolism of the brain.

GENERAL CONCLUSIONS.

The currents of thought started by these cases are, however, not likely to lead us into any useful channel until we have a great many more clinical records to work upon, together with additional observations, including the electrical reactions of the affected muscles, the deformities produced, and the prognosis. It has not been possible to gather information on these points.

Although the importance of these paralytic effects of arterial injuries cannot at present be estimated, yet, until we are better informed as to prognosis, we may well be more reluctant in the future than we have been in the past to tie a main artery for the arrest of haemorrhage. We shall be more particular and persistent in our endeavours to find the exact source of bleeding, in the hope that it may prove to concern a branch only instead of the main trunk. And, in those instances in which the main trunk itself is wounded, we shall be more disposed to cure the leak by suture of the vessel, or failing this, to attempt an escape from the ill consequences of direct ligature by the temporary use of a Tuffier tube. Furthermore, when we are compelled by the nature of the case to tie a main artery, we shall take care to tie the main vein also; because, as Sir George Makins has pointed out, the results which follow ligation of both vessels are better than those which ensue upon a blockage of the main artery alone.

LITERATURE.

Though there is not much literature on this subject there is enough to give food for thought.

In the first place, the association of so-called ischaemic paralysis, of the type described by Volkmann, with injuries involving complete blockage of an artery, has been recorded by J. G. Sherrill,[1] Carl Hirschmann,[2] L. Verdelet,[3] and others, although the association does not appear yet to have become a matter of general surgical knowledge. Further, H. Meige and Mme. Athanassio-Benisty[4] have observed that the vasomotor, trophic, and secretory disturbances found in certain cases of nerve injury are not due directly to those nerve lesions, but are dependent on coincident arterial lesions, while Leriche[5] has noted not only that so-called ischaemic paralysis may follow obliterating lesions of an artery, but has put forward the suggestion that the symptoms are the result not of the arterial wound, but of the concomitant injury to the sympathetic nerves which accompany the artery. He states, moreover, that if in such a case the whole of the obliterated segment of the artery be removed together with its nerve sheath the major part of the troubles disappear, the hand becomes warm, its colour changes, and the skin resumes its normal appearance, the fingers lose their stiffness in an appreciable measure, and, finally, the pulse reappears at the wrist. Leriche has been able to demonstrate this in six cases, and in all the transformation was identical.

It is clear that if this pathology be established there is justification for a new title for paralysis of vascular origin, a title which shall include the two factors of ischaemia and sympathetic reflex disturbance.

Acknowledgments.—In conclusion, I should like to express my thanks to the medical officers, under whose care the cases quoted have been, for their friendly co-operation, to Colonel C. A. Ballance and Colonel Gordon Holmes for several helpful suggestions.

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A CASE OF RAT-BITE FEVER TREATED SUCCESSFULLY BY INJECTIONS OF NOVARSENOBILLON.

BY

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RAT-BITE FEVER—Sodóku of the Japanese—is a comparatively rare disease. It was recognized, quite a long time ago now, by Miyake and others in Japan as a definite entity. Cases have also been reported in England (Middleton, Horder, Cruickshank), in the United States of America, in France, and in Italy (Frugoni). As far as we are aware, our case is the first reported from East Africa or the tropics proper. The finding of the causative agent is of recent date. In 1915 Futaki and his fellow workers demonstrated the presence of long spirochaetes in the lymph glands of cases on the tenth to thirteenth day of the illness. Later they discovered in man, in the wound of the rat-bite, and in the blood of inoculated mice short, thick spirochaetes, and at first were unable to determine which of these two was the cause of the disease. Recent observations have, however, shown that the long and short forms are the same species, the long ones being old and found almost exclusively in human tissues, while the short ones are the young forms, and can be found in the blood of patients with the disease and in experimental mice (Kaneko and Okuda). Futaki's work has been confirmed by Kaneko and Okuda,[1] and it seems quite clear that rat-bite fever is another spirochaetal disease. According to the authors last named, the parasite can be found in the blood during the height of the disease.

Hata, in a paper published in 1912,[2] refers to eight cases of rat-bite fever treated by salvarsan. The results were striking; all symptoms quickly disappeared, and most of the cases were cured. Two relapsed, but in them the dose had only been small—namely, 0.3 and 0.4 gram. Since then other cases treated in a similar manner have been reported upon, and the recent discovery that the malady is a spirochaetal one fits in well with the undoubted efficacy of salvarsan and its derivatives in curing it.

The following is the history of a case we have treated recently:

Mr. H., aged 25, on January 31st, 1917, when in East Africa, was bitten by a rat on the back of the right forearm. He was sleeping in a mosquito net, and the rat attacked him through this, inflicting a severe bite. This healed up and was practically gone when, some seven days later, pain commenced at the site and the place swelled up. Fever then appeared, and with this a rash broke out on the body. Later the glands in the right axilla enlarged, and following this a general adenitis was noticed. On the twelfth day, after onset of symptoms, the bite, which had now broken down, was lanced and some pus escaped. About the twentieth day severe joint and bone pains came on, and the throat also became inflamed and very sore. The condition improved, but quickly relapsed, and between that time and the present (January 31st, 1918)—namely, a year—patient can count nineteen relapses at varying intervals. There was a severe one in May, 1917. Complicating the real rat-bite symptoms, however, the patient had also suffered from malaria, and it is not certain which of the two infections was responsible for the different bouts of pyrexia. Malarial parasites were found in the blood in August, 1917, during an attack

Previous Illnesses.—Dysentery, much malaria (before the rat bite), never syphilis (he was very definite as to this), no history of tick fever, but here again the possibility of this disease is not excluded, as he has been in areas where it prevailed, and some of his friends had actually suffered from it; phlebotomus fever December, 1916.

First Examination.—The patient was seen first by one of us (G. C. L.) on September 25th, 1917, having been sent by Dr. A. M. Elliot for examination. He was then fairly well, and was only complaining of getting tired easily and of headaches. He looked a little sallow, was slightly anaemic, the spleen was palpable, and the glands in the right axilla and in the posterior triangles of the neck were definitely enlarged. The urine was normal, the blood showed no malarial parasites, but there was a definite large mononuclear increase. A diagnosis of rat-bite fever and malaria was made, and the patient was instructed to present himself immediately if any signs of a relapse appeared.

Second Examination.—On December 10th, 1917, he came again. On December 3rd he had an attack of fever in the middle of the day, for which he had to go to bed; the temperature rose to 104° F. This attack responded to aspirin and quinine, but he still complained of pain in the glands and in the back of the neck with more or less constant headache. The glands in the neck areas were big and very tender to palpation. They were also easily palpable in the other areas. Dusky coloured purplish-red eruption over trunk and neck and on the arm which had been bitten, its appearance being best described by the term blotchy. It was very typical of the eruption described in papers on this disease. Bones tender, no malarial parasites in the blood, no trypanosomes, no spirochaetes. Relapse of the rat-bite disease was diagnosed.

Treatment.—He could not begin treatment that day, but came to hospital on December 17th. The rash was then fading, but the glands were still tender and enlarged. We then decided that we should give him a course of novarsenobillon, and he had 0.4 gram that afternoon. He stood the injection quite well, and went home that evening. The second injection, 0.6 gram, was given on January 3rd, 1918. The eruption was gone, and the glands were very much smaller, being difficult to palpate. There had been no more fever, and the patient expressed himself as feeling much fitter. Bearing in mind the experience of Hata with relapses after one small dose, we thought it better to give a third and final injection on January 25th (0.9 gram). This produced chilliness and a slight rigor. A careful examination on that day did not reveal any more signs of the disease, the glands could not be felt, there was no trace of any eruption, no rise of temperature, and all the pain in the neck, together with the headache, had completely disappeared. On January 28th he expressed himself as feeling all right, with the exception of getting fairly easily tired and slight pain in his legs. In view of his malarial element, he was told to take 5 grains of quinine twice a day for the next three months.

As already stated, two or at the most three injections of salvarsan or its derivatives seem to cure rat-bite disease completely. The interest in this case lies in the double infection, which rendered the diagnosis more difficult. A Wassermann test was done before the treatment was begun. It was positive, as is usually the case in other spirochaetal diseases. Clinically, there never was any suspicion of syphilis, the history of the bite, the way the symptoms developed after it, the typical nature of the eruption, and the relapses all being characteristic of rat-bite disease.[3] The same remarks apply to trypanosomiasis, which had to be considered in the differential diagnosis. In addition, no trypanosomes were found in the blood, and the eruption was not the same as is met with in that disease.

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HOME DISINFECTION IN PULMONARY TUBERCULOSIS.

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THE object of the following experiments was to indicate the simplest, cheapest, and most available means of countering the risks incurred when a sufferer from consumption shares living and sleeping rooms with others. It is doubtless the poor who run the greatest risk, more particularly because of their crowded circumstances and the greater difficulties they experience in adopting the necessary precautions; to them efficient chemical disinfectants are prohibitive in cost, and when distributed gratuitously by the local sanitary authority they are generally employed in a manner which gives but little security.

In the selection of measures to meet their needs regard must be had to the fact that, mainly owing to the increasing use of gas stoves, there is often no open fire (for at least many months of the year) for burning sputum, infected dust, paper handkerchiefs, etc. Therefore the advice here offered is based on the use of hot water, and the aim has been to define how this agent may be simply and effectively employed.

Floors.—Pieces of board were scrubbed and thoroughly disinfected and dried. They were then smeared with a thin layer of sputum containing tubercle bacilli. This was covered and allowed to dry, and on the following day one piece was scrubbed with hot water (as hot as could be borne) and yellow soap in the proportion usually employed in washing floors. This piece was then covered and allowed to dry, after which washings and scrapings of the infected surface into sterilized water were inoculated into guinea-pigs. Two out of three experiments gave negative results, the non-scrubbed board giving positive results in each case. The conditions of this experiment were those of very gross contamination, far in excess of what would occur in actual practice; and so it may be assumed that the process of good scrubbing with hot water and yellow soap will suffice in actual practice.

Experiments were made to ascertain whether soap in the proportion usually employed for scrubbing floors has any disinfectant value, since soap itself is practically sterile. The test organism employed was *Staphylococcus epidermidis* Welch, and the soapy water used was at a temperature (140° F.) well below the thermal death point of the organism. The results indicated that the soap had only a very slight effect, and that its only material value is the aid it renders in the collection and removal of dirt (with associated organisms) from infected surfaces.

Handkerchiefs, Pillow-slips, etc.—The ordinary staphylococcus of the skin (*S. epidermidis* Welch) obtained by rubbing a little broth on the skin of the hands and distributing a loopful of this over agar slopes was employed as a preliminary test organism. A pure culture was obtained on agar slopes, and it was found that the growths were killed by exposure for twenty minutes to a temperature of 75° C. in the form of moist heat; whereas the tubercle bacillus is destroyed at 70° C. in the same time. This staphylococcus is a more convenient germ to employ in preliminary experiments than the tubercle bacillus, the thermal death point of both organisms being about the same and the former germ being easy to cultivate.

Tuberculous sputum was sterilized by steaming for twenty minutes, and inoculated with growths of the staphylococcus. Sterilized strips of linen were soaked in this, then placed in cold sterilized water and gradually brought to the boiling point. Directly the water boiled the strips were removed and cultures made from the drops of fluid pressed out of them. In four sets of experiments there were no growths, while the control slips in every case furnished growths.

Boiling water was removed from the gas, and similarly inoculated strips of linen were immediately immersed and left for half an hour in the very hot water; they were then removed and efforts made to cultivate the germ. Again in four cases there were no growths on the strips so exposed, while all the control strips immersed in warm water furnished growths.

One pint of tap water was boiled and at once poured into a cold sterilized quart basin. Four strips of sterilized linen soaked in sterilized sputum which had subsequently been inoculated with the staphylococcus were immersed in the water and left there for fifteen minutes. The strips were then removed, and in no case was it possible to obtain growth from the water pressed out of the linen strip. The temperature to which the slips were exposed was at the commencement 90° to 92.5° C., and at the end 63° to 67° C. Control slips placed in warm water (50° to 60° C.) gave positive results.

Similar experiments were made with the basin filled with sterilized handkerchiefs and inoculated strips placed between them, the aim being to deal with as many handkerchiefs as practicable, provided they were just covered by a layer of water. After fifteen minutes the slips were removed and agar slopes inoculated with the water pressed from them. Controls in warm water gave positive results; but seven out of eight were negative from the slips exposed to a commencing temperature of 86° to 88° C., and an end temperature of 62° to 65° C.

For confirmatory purposes the last experiment was repeated with sputum considerably infected with tubercle bacilli. After twenty minutes the strips were removed and the material from them filtered and inoculated into guinea-pigs. In the control strips only warm water was employed. Two months after inoculation the three control guinea-pigs had enlarged caseating glands on the side of inoculation; both by *post mortem* and microscopical examination the infection was shown to be due to the tubercle bacillus. The nine guinea-pigs which had been inoculated from the strips exposed to nearly boiling water were healthy, except one, which had an enlarged femoral gland on the side of inoculation.

I desire to acknowledge my indebtedness to Professor H. R. Kenwood for valuable advice and assistance in connexion with the foregoing experimental work and the statement in which I have embodied it.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

ULCERATIVE GINGIVITIS: VINCENT'S ANGINA.

DURING the period of the war attention has been attracted to an ulcerative condition of the gum margins which is associated with the organisms described by Vincent. There would seem to be an idea on the part of certain writers that this is a disease discovered during the present war. Such is not the case. The clinical condition has been well recognized by dental surgeons for the last twenty years, cases constantly occurring in the clinics of the various dental hospitals. In John Hunter's famous work on the teeth there is an excellent description of this condition in the section on "Scurvy of the gums."

Amongst recent writers the credit of drawing attention to the subject should, I think, be given to J. S. Marshall of Chicago, who described the condition in the following words:

> The clinical characteristics are the formation of ulcers at some point of injury, which at first appear in nowise different from the ordinary form of a localized ulcerative stomatitis, but which, after the lapse of twenty-four to forty-eight hours, begin to spread rapidly along the margins of the gingivae in all directions, involving both jaws, and sometimes extending to the hard palate and the floor of the mouth. The margins of the gums assume a general ulcerative condition, accompanied by swelling, redness, and considerable congestion of the parts, which bleed easily. Later they become covered with a dirty white or yellowish-white pellicle or membrane—somewhat resembling the thrush film—which sloughs off after a day or two, destroying the festoons and leaving a ragged surface. The denuded surface is very red and covered with coarse granulations, which bleed upon the slightest provocation. The gums are loosened from the necks of the teeth and the borders of the alveolar processes are exposed. Pus mixed with blood exudes from the inflamed tissue about the necks of the teeth. The breath and excretions are very fetid and salivation is profuse. In these respects the symptoms resemble mercurial ptyalism. The ulcerated surfaces are exceedingly sensitive and motions of the tongue and lips on this account are very painful. Food is taken with difficulty. Accompanying the local manifestations there is a general febrile condition, temperature ranging from 100° to 101° F., thirst, loss of appetite and general malaise, sleeplessness, and irritability of temper.

On the appearance of Vincent's publication it was apparent that there was a close similarity between the throat condition he described and that of the gums, and bacteriological examination showed that the latter condition was associated with the so-called Vincent's organism.

During the present war the condition has become widespread, and we have yet to find the real cause. One writer has suggested that it is to be found in the constant inhalation of putrescent matter.

The disease is seldom found in a clean mouth; by a clean mouth I mean one where the gingivae are normal. The ulceration usually starts around badly fitting crowns, in the deep pocket posterior to the lower third molar, and in mouth breathers around the necks of the lower incisors, but it may begin in any position where there is periodontal disease—in other words, in pre-existing "stagnation areas." These areas usually harbour organisms of the staphylococcal group, but in the case of Vincent's angina they have become infected with the organisms of that disease, which, as we know, are exceedingly toxic in character.

Treatment should be directed towards the irrigation of the pockets and the local application of drugs considered to have a specific action on the organism. Arsenical preparations have been advocated, but I have not found that they possess any advantage over iodine. Areas that cannot be easily irrigated should be eradicated, and it is most important that any mouth breathing should be corrected; as long as this is present the condition is extremely difficult to combat.

My principal object in writing this note is not so much to draw attention to the pathology of the condition, but to record the fact that we are dealing with a condition which was well known and recognized by dental surgeons long previous to the present war.

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Reports of Societies.

EYE-STRAIN IN GENERAL PRACTICE.

AT a meeting of the Medical Society of London held on February 4th, with DR. JAMES STOWERS in the chair, MAJOR WALTER BROADBENT, R.A.M.C.(T.), read a paper on interlobar empyema and other surgical complications of the thorax, which was discussed by DR. DE HAVILLAND HALL and MR. HUGH LETT.

DR. H. A. DES VŒUX read a paper on the symptoms of eye-strain as met with in general practice. He said that the symptoms were hardly ever attributed to the eye as a possible cause, the patient declaring that the eyesight was perfect and the oculist usually saying that the defect was so slight as to be negligible. The following syndrome was produced by eye-strain (including migraine): Fears and panics; depression of spirits and vitality; fits or attacks (including fainting); giddiness, dizziness, and vertigo; fatigue; indigestion; paralysis (functional); disorders of sleep; train vomiting. The paper was based on an analysis of 100 cases, consisting of 35 males and 65 females. In women the symptoms tended to be intensely aggravated at or about the catamenia. The age limit was very wide, but most of the patients could trace back symptoms to early youth or childhood. If surrounding conditions were favourable to their production the symptoms would first show themselves in a minor degree in childhood and become quite manifest about 15 to 25. The greatest success in treatment was attained at this age. The general health showed no alteration which would account for the symptoms; many complained of indigestion, without signs or symptoms of dyspepsia or any indication of disease or disturbance of the liver. Some patients suffered from colitis, but in most the eye-strain symptoms preceded this disease. Heart disease was conspicuous by its absence.

Analysis of Symptoms.

Headache or migraine was present in 60 to 70 per cent. of the patients. In some it constituted the chief if not the only sign; in others it was trifling or slight. The commonest seat of the pain was the frontal region, sometimes beginning on one side and passing to the other, sometimes beginning on both sides. Often it was definitely in the eyes, "through the eyeballs," "at the back of the eyes," with some tenderness of the eyeballs. The pain, however, might be vertical, occipital or temporal, but never parietal alone.

Depression of spirits was noted in 30 per cent., appearing generally to be due either to the frequent attacks and the dread of their recurrence, or caused by inability to take an active part in life, or by having to give up an occupation which was congenial or the only source of income. In some cases depression was the only marked symptom.

Fatigue was mentioned in about 40 per cent., produced apparently by the constant bodily suffering. Many had been typical neurasthenics and had been treated as such. As with migraine, it often began in the morning.

Fears and panics were often mentioned. Fears took the ordinary forms of unreasoning dread of what was going to happen, or some approaching catastrophe, or of a pending illness. The panics not unseldom took the form of claustrophobia.

Indigestion was frequently complained of, and was a marked symptom in 30 per cent. In most it was quite atypical; a want of appetite, distaste for food, and fullness or a little flatulence. The abdomen frequently felt normal, but in some cases there was undoubtedly definite and severe indigestion, with flatulent distension. Constipation was often marked, and in practically all the cases had always previously been assigned as the cause of the trouble. Disorders of sleep were very common. Insomnia was much complained of in twelve cases, but most patients mentioned some discomforts about sleep; it was often heavy, sometimes very restless. Whether the sleep was absent, intermitting, restless, or accompanied by dreams and nightmare, waking up unrefreshed was the ordinary result. Dropping to sleep during the day was frequently mentioned.

Giddiness or vertigo was present in one-fourth to one-third of the cases, of a similar type to that produced by other causes.

Attacks were complained of by many patients. Certain of these were undoubtedly true fainting or syncopal seizures. The fainting so common in crowded hot rooms, concerts, etc., was probably of ocular origin. Some of these seizures conformed in every respect to *petit mal*, and attacks of complete unconsciousness might occur. There might be some close relationship between eyestrain and epilepsy.

Among other symptoms noticed were an inability to concentrate; a feeling of unreality sometimes almost of dual personality; muscular twitching of the face, arms or legs, or

body generally; and irritability of temper. Train vomiting was prominently mentioned by five of the patients.

Transient paralysis was sometimes met with, mostly in those in whom migraine was prominent.

All patients immediately recognized that the symptoms were produced or intensified by railway travelling, sight-seeing, theatres, crowds, railway stations, big shops, shopping, race meetings, motoring, sometimes games of ball, and, less frequently, by hard and prolonged reading. They nearly all preferred to walk in side streets to main streets, and in the parks instead of the streets. They complained of "smoky rooms," "hot rooms," and "stuffiness," but might live in a stuffy, hot, ill-ventilated house, and remain free from attack. It was a disease of town dwellers and brain users; as frequent in the quick, intelligent society gossip as in the studious. As time went on these things caused so much suffering that the patient tended to avoid them, and might drift into a life of a recluse.

With regard to the condition of the eyes the orbits in a few cases were not horizontal, but set at an angle to one another. A more constant sign was twitching of the lower lid, very marked in some cases. Sometimes the eyelids were squeezed towards one another.

With regard to treatment, the patient must be sent to an oculist. Cut of the 100 cases, 77 were reported on by an oculist; and of these 54 (or 70 per cent.) were hypermetropic and 14 (or 18 per cent.) were myopic. Both conditions were almost always combined with astigmatism. Nine cases had mixed or varied conditions. It was the slight degrees of error of accommodation which did harm. With extreme degrees the patient soon found out that he could not see without glasses; with slight degrees he could *see* perfectly well, but it was a strain to see, a strain not felt or recognized, but which produced results after a time. The human eye was made for man in the roving and agricultural life, and was not adapted for the restless, unceasing movement at close quarters in a town, entailing constant and rapid changes of accommodation.

Mr. ERNEST CLARKE accentuated the point that those with "perfect vision" were the most difficult to deal with. Oculists were much to blame, as they referred patients back to the physician after only a very superficial examination. Under ordinary circumstances small defects of vision were negligible, and the amount of nervous energy lost was a mere fraction of the whole; but with close, concentrated work this loss of energy became important, and the symptoms it caused could be cured by glasses. He had seen epileptoid attacks brought on by the nervous exhaustion caused by eye-strain. There was no functional nerve trouble which could not be caused by it. The importance of the subject was not yet recognized.

Dr. KENNETH SCOTT said that one proof of the fact that the symptoms were due to eye-strain was that they were cured by glasses, and that when the symptoms recurred it was found on re-examination that the condition of the eyes had changed. Patient and careful examination was most necessary, and glasses should be worn constantly. Out of 100 consecutive cases which he had seen 81 per cent. had astigmatism or astigmatic error of low degree (below 1 D.). The position of the astigmatism was important. When against the rule the symptoms were exaggerated and severe; when in one eye the astigmatism was against the rule, and in the other eye it was ordinary, the symptoms were less accentuated.

Colonel ERNEST KINGSCOTE recalled a number of epileptics who suffered from error of vision, and emphasized the importance of the relation between these two affections.

ENTERITIC CONVALESCENTS.

AT the meeting of the Liverpool Medical Institution on January 31st, Mr. W. THELWALL THOMAS, president, in the chair, Professor ERNEST E. GLYNN gave the substance of a special report on enteritis convalescents from the Thompson-Yates laboratory of the university. He said that there were now five types of bacteria recognized as pathogenic of enteritis: (1) Shiga's bacillus, (2) Flexner's bacillus, (3) typhoid bacillus, (4) paratyphoid A, and (5) paratyphoid B. A paratyphoid C had recently been described in Germany. Cases of dysentery had been detected among recruits who had never been out of England, and *histolytica* cysts had been discovered. Apart from the bacterial cause, it would appear impossible to differentiate clinically typhoid B from other bacterial forms of typhoid. Paratyphoid (A and B) was more common than typhoid. The difference in temperature, the amount of distribution of the rash, the presence of haemorrhage from the various mucosae, were noted in paratyphoid cases as being more marked than in typhoid. In summing up the results of his observations, Professor Glynn expressed the opinion that in all cases of convalescent enteritis two examinations of the faeces should be made at an interval of one month. He regarded bacillary dysentery as endemic in England, especially in asylums. The importance of systematic bacteriological examination was insisted upon. There was still much confusion on the subject; a consolidation of the bacteriological findings of many observers, and their correlation with the clinical histories was greatly to be desired. The danger of carriers was emphasized, and any fresh outbreak should at once suggest the possibility of such a contingency.

RODENT ULCER.

IN a paper read recently before the Section of Medicine of the Royal Academy of Medicine in Ireland, Dr. WALLACE BEATTY discussed the different views regarding the origin and nature of rodent ulcer. He dwelt on the difficulties in explaining (1) the extremely benign course of rodent ulcer, if it is to be regarded as a carcinoma; (2) the difference in the character of the cells of the tumour, as contrasted with ordinary epithelioma, if its origin is from the surface epithelium. He considered the nervous theory of rodent ulcer attractive as it would explain these two difficulties. He compared the cells of the tumour to those found in soft naevi, which Unna had shown to originate from the epithelium of the surface. Dr. O'BRIEN said that no definite line of demarcation existed between non-ulcerated rodent ulcer and superficial epithelioma. The latter might remain dormant for ten years. Irritation seemed a causal factor in both. He had practised light therapeutics for twenty years, and in 1904 read a paper on the then position of radium therapy. In 1906 he showed cases of undoubted rodent ulcer cured by radium. Eight years later these cases were again shown, still well, and he hoped to have another opportunity soon of exhibiting them apparently cured. He considered radium bromide the best treatment, at any rate for superficial ulcers. Dr. HAYES thought that treatment should depend on the character of the growth. Carbon dioxide snow was excellent for very early cases, though *x* rays were also successful. He thought occasional doses should be given for several months after apparent cure was obtained. Cases in which cartilage and bone were involved presented most difficulty in selecting the most suitable treatment. No method was ideal for all cases.

SYPHILIS AMONG GYNAECOLOGICAL CASES.

AT the meeting of the Ulster Medical Society on January 31st Dr. C. G. LOWRY read a paper on the incidence and manifestations of syphilis amongst gynaecological cases attending the extern department of the Ulster Hospital for Women and Children, 1912–17. The results are set out in the following tabular statement:

Total cases examined		1,729
Total number in whom syphilis, active or latent, was suspected		337
Unmistakably syphilitic	47	
A strong suspicion of syphilis was entertained in 121 cases—		
Confirmed by Wassermann reaction in	87	
Contradicted	34	121
A syphilitic element suspected in 169 cases—		
Confirmed by Wassermann reaction in	109	
Contradicted	60	169
		337

In the 337 cases a reasonably sure diagnosis of syphilis was made in 243 cases either on clinical grounds alone or clinical grounds and history supported by a positive Wassermann reaction. Of the 94 cases which gave a negative Wassermann reaction, two at a later date gave a positive luetin reaction. Fifteen Wassermann reactions were

performed amongst the 47 undoubted syphilitics. All were positive. In 45 additional cases a tentative diagnosis of syphilitic influences was made, but from various reasons the blood could not be examined or results were thought unreliable or were contradictory. In all 305 patients were examined by the Wassermann test. The luetin test was applied to 15 patients. The paper gave rise to considerable discussion. Stress was laid upon the increase of venereal disease, the greatly increased number of cases of syphilis and gonorrhoea in the innocent, and of instances of the disease spreading in a family, and on the necessity of early energetic treatment with salvarsan and mercurial inunction.

Reviews.

TUBERCULOSIS.

THE treatment of tuberculosis by means of the injection of "immunkörper," which was originally proposed by Carl Spengler, was primarily intended to meet the requirements of the case of low resistance and hence to be of service in advanced tuberculosis of the lungs. Many observers have used it, but not with uniform success. In a compact volume,[1] Dr. NIVEN ROBERTSON, of the Benenden Sanatorium, has set forth in concise form the chief points with respect to the therapeutic use of I.K. and an interesting account of the steps by which its properties were first studied and demonstrated by Spengler. His own experience of it does not appear to have impressed him with the same enthusiasm that has led others to use it almost exclusively. He relates several cases in detail the results of which would seem to have been little influenced by the special treatment, but so many other observers have recorded cases in which unexpected success has been achieved that he thinks the method ought to be more widely studied and tried, and the account of the whole subject as contained in his book will doubtless be found of great service by those who may undertake to make use of it. Spengler recognizes three varieties of bacillus: the original short bacillus demonstrated by Koch, a long bacillus recognized by himself, and the bacillus of bovine origin. Only the two former are usually detected in cases of pulmonary disease. The definition of *Immunkörper* is the acid blood of rabbits immunized against these two forms of bacillus and against pyogenic organisms, such as streptococci. The powers possessed by this blood are said to be lytic and antitoxic, as well as immunizing. Its method of preparation, properties, and practical employment in treatment are very fully described, and its specific action in experiments duly explained. While Spengler himself has gradually adopted it as a routine form of treatment, Dr. Robertson regards it as a useful adjunct to other means in properly selected cases. His account of the whole subject may be regarded as a complete summary of present knowledge with regard to I.K. therapy.

In his interesting *Three Clinical Studies in Tuberculous Predisposition*[2] Dr. W. C. RIVERS brings forward a mass of evidence to show that pulmonary tuberculosis is connected with three pathological conditions, namely, ichthyosis, squint, and nasal abnormalities such as adenoids, of which two at least do not at first sight appear to have any relation with it. These conclusions have been forced upon him by clinical observation, and he makes out a good case for their correctness. He believes that ichthyosis may entail a liability to consumption of the lungs; and that as ichthyosis is described by dermatologists as the most hereditary of skin diseases, the predisposition to tuberculosis that sometimes accompanies it may possibly sometimes be hereditary too. Squint Dr. Rivers holds to indicate in certain instances the presence of a predisposition to pulmonary tubercle, without itself forming an active constituent of a phthisical diathesis. In the essay on consumption and non-tuberculous nasal abnormality, which forms the bulk of the volume, the author states that the nose is normal in only some 31 per cent. of consumptives, but in 63 per cent. of non-consumptives, and produces a great deal of evidence to show that nasal disease in general, by causing mouth breathing, predisposes to tuberculous infection of the lungs. The questions with which Dr. Rivers deals so fully and persuasively in this well-written volume are questions to be settled by the collection and analysis of statistics. It is certain that he will find many to agree with him in his endeavour to establish an endogenous factor—the soil—in the disease due to infection of the lungs with tubercle bacilli—the seed.

[1] *The Treatment of Tuberculosis by Means of Spengler's Immune Bodies (I.K. Therapy).* By Niven Robertson, M.D.Edin., D.P.H. Camb., Medical Superintendent, National Sanatorium, Benenden, Kent. London: Baillière, Tindall, and Cox. 1917. (Cr. 8vo, pp. xiii + 152.)

[2] *Three Clinical Studies in Tuberculous Predisposition.* By W. C. Rivers, M.R.C.S., D.P.H. London: George Allen and Unwin, Ltd. 1917. (Demy 8vo, pp. 285; illustrated. 12s. 6d. net.)

NOTES ON BOOKS.

THE fourth American edition of Professor KREHL'S well known textbook, *The Basis of Symptoms*,[3] follows rapidly on the third, which was reviewed in these columns in January, 1917. Since it does not appear that any very noticeable changes have occurred in the text, though the volume is bigger by fourteen pages than on the last occasion, there is no need to do more than endorse the opinions expressed in the last review. The American translation is well done and the work has been kept fairly up to date by insertions from Dr. Beifeld's pen.

Among the buyers of old pictures are a good many amateurs who like to trust their own judgement. They make mistakes, and it would not be in human nature did they not find solace in the mistakes of experts. Dr. RICKARD W. LLOYD has written a pleasant gossipy book for amateurs. It is entitled *The Cult of Oil Paintings and the Romney Case*.[4] Dr. Lloyd discusses the principles by which the buyer should be guided, but the story of the extraordinary conflict of expert evidence in the Romney case last summer and its dramatic ending, from which the book gains actuality, must leave the judicious amateur rather diffident of backing his own opinion by purchase. The book is illustrated by sixteen plates from old pictures, none of which, the author states, have been reproduced before.

The issue of the *Cambridge University Calendar* in 1913 contained nearly 1550 pages, forming a distinctly bloated volume. It was therefore decided to transfer in future the historical information hitherto contained in the annual calendar to a separate volume, appearing at much longer intervals under the title of the *Historical Register*.[5] The first issue of this has now appeared. The new arrangement has given an opportunity of adding to the customary information. Thus the lists of holders of university offices, professorships, readerships, and lectureships, have been completed from the earliest recorded dates, with brief footnotes to the names of notable men. New sections have been added on university courts, ceremonies, customs, discipline, and other historical matters. Again, the Tripos lists of the old Calendar have been collated and corrected, and the footnotes revised to the end of 1915. The arrangement and printing of this interesting volume leave nothing to be desired. It is a mine of information, edited with scholarly care and precision.

A valuable summary of the literature dealing with *The Theory and Use of Indicators*[6] has been made by Mr. PRIDEAUX. It is a book for the chemist and mathematician primarily, and makes no allowances for the weakness of physiologists or others whose acquaintance with chemistry and mathematics may chance to be incidental rather than profound. It approaches the use of indicators, or organic substances indicating the acidity or alkalinity of solutions by some characteristic colour, from the point of view of electrolytic equilibrium and molecular structure. It thus deals with problems of great interest to the chemical physiologist, the chemical geologist, workers in the fermentation industries, and technical chemists.

[3] *The Basis of Symptoms: The Principles of Clinical Pathology.* By Ludolph Krehl, Ordinary Professor and Director of the Medical Clinic in Heidelberg. Authorized translation from the seventh German edition by Arthur Frederic Beifeld, Ph.B., M.D., with an introduction by A. W. Hewlett, M.D. Fourth American edition. 1917. Philadelphia and London: J. B. Lippincott Co. (Pp. 540. 21s. net.)

[4] London: Skeffington and Son. 1918. (Cr. 8vo, 196 pages; 16 plates. 6s. net.)

[5] *The Historical Register of the University of Cambridge.* Being a Supplement to the Calendar with a Record of University Offices, Honours, and Distinctions to the year 1910. Edited by J. R. Tanner, Litt.D. Cambridge: The University Press. 1917. (Cr. 8vo, pp. 1198. 12s. 6d. net.)

[6] *The Theory and Use of Indicators.* An Account of the Chemical Equilibria of Acids, Alkalis, and Indicators in Aqueous Solution, with Applications. By E. B. R. Prideaux, M.A., D.Sc. London: Constable and Co., Ltd. 1917. (Demy 8vo, pp. vii + 375. 12s. 6d. net.)

VENEREAL DISEASES.

PROPHYLACTIC AND ABORTIVE TREATMENT.

IN the House of Commons, on January 22nd, Mr. Macpherson, Under Secretary of State for War, was asked by Mr. Peto:

Whether it was proposed to take any further steps to stop the spread of infection by venereal poisons among British troops; whether there was any Army Order which forbade or discouraged the necessary prophylactic medical measures, and whether it was proposed to issue an Army Order instructing army medical officers of superior rank to take the necessary action as a part of their regular medical duties. Mr. Macpherson, in reply, said that there was no Army Order authorizing the use of such preventives or forbidding them. The answer to the last part of the question was in the negative. In reply to a further question, Mr. Macpherson expressed the opinion that this was really a national question and not so much a military question.

On February 1st Mr. Peto asked a further question with regard to a War Office letter to General Officers Commanding, dated March 18th, 1916, which stated that the Army Council could not accept suggestions with regard to prevention which would imply the adoption of any system of prophylaxis which might be said to afford opportunities for unrestrained vice, whether this deterred army medical officers from taking steps to prevent the spread of venereal disease in the army, and whether the Army Council would now withdraw any restrictions which prevented effective measures being taken to avoid the waste of man power in the army from this cause. Mr. Macpherson declined to add anything to his answer of January 22nd, and in reply to a further question stated that he could not give accurate statistics of the number of men who passed through hospital suffering from venereal diseases in a year, and who were at any one time incapacitated from that cause. He added that it was not to be inferred that medical officers were prevented from taking every possible step to cure the diseases.

We have asked Mr. E. B. Turner, Chairman of Representative Meetings of the British Medical Association, and Representative of the Association on the National Council for Combating Venereal Diseases, for an expression of his views, and he has replied as follows:

I have been asked by the Editor to furnish him with a statement from my personal knowledge of the matters referred to by Mr. Macpherson with regard to prophylactic treatment of venereal disease, and the orders issued by the Army Council relating thereto.

I have given lectures on venereal disease ever since the commencement of the war, and I have been distinctly directed and ordered by the authorities not to introduce into the lectures any description of chemical personal prophylaxis, or in any way advocate its use. The lecturers are allowed to impress upon the men the importance of the earliest possible treatment if they find themselves infected, and also the wisdom of consulting their medical officers with regard to preventive or abortive early treatment if they have run the risk of infection but do not yet know whether they have been infected. Thus far the lecturers have been authorized to go by the Army Council.

With regard to the whole question of the issue of prophylactic outfits my personal opinion is that it might not be of much real use in diminishing the actual number of cases of venereal disease occurring in the army. In the first place no one can say that the methods afford absolutely certain and sure protection from the infection either of gonorrhoea or syphilis. Figures are always fallacious, but in the cases which have come under my personal knowledge the percentage of failure has been very high, and this can easily be understood when one considers the conditions under which infection generally takes place. The principal medical officer of one of the largest hospitals for venereal diseases in London lately traced the source of infection in the last 100 cases admitted into that institution; he found that of these 100 men only 28 had got the disease from professional prostitutes; the remaining 72 were the victims of what might be described as the amateur flapper. It therefore stands to reason that in many cases the necessary precautions to avoid infection would have to be taken not in the "ordered circumstance of a harlot's room" but in the open air, in barns, copses, or commons, or behind a hedge, and therefore unless a man were extremely sober, very cold-blooded and skilful with his fingers, the chances are that he might fail to protect himself efficiently. It is pretty certain that an intoxicated or semi-intoxicated man would almost infallibly fail in the minutiae of the protective process, and therefore become infected. If a man, as is very probable in some circumstances, incurs the risk of infection three or four times in a few hours, it is very improbable that before each performance he is likely again satisfactorily to protect himself.

It follows from all this that there will always be a certain percentage of cases infected even if prophylactic precautions are taken. If 100 men were exposed to the chances of infection unprotected, and 100 protected by prophylactic measures, in all probability the percentage of cases of infection would be a good deal larger in those unprotected. But if the doctrine of prophylaxis were widely preached and the efficacy of the methods insisted on, the chances are that a very much larger number of young men would run the risk of infection than is now the case.

I have no doubt myself that fear of contracting venereal disease of either sort is a very potent inducement to a large number of young men to keep straight, and I am sure that the impression that a perfectly sure method of avoiding infection could be used would lead a larger number of men to run the risk. If they know and thoroughly understand the fact that gonorrhoea is a very serious disease, and that syphilis in its latest stages spells ataxia and general paralysis of the insane, they are afraid of running the chance of contracting either.

It is a fact well known to all social workers that the standard of what I may call practical morality among young women of every class of society has gradually deteriorated since, some twenty years ago, the Malthusian propaganda began and the public display and advertisement of Malthusian appliances followed. The fear that a lapse from morality would mean an increase in the population was an extremely potent factor in ensuring the chastity of young girls.

I am certain that among young men the fear of infection with venereal disease acts in the same way, and I consider that on this matter I am probably better fitted to speak with authority than most men of my age and standing, because I was a competitor in first class athletic events until I was 38 years old, and before that time and ever since I have been in the closest touch with young men, athletes, in every class of the community, serving on committees and acting as president of athletic, cycling, and football clubs and as a member of the governing bodies of sport. If the idea that illicit sexual intercourse could be indulged in with impunity became at all general, I am sure that the gross number of cases of venereal disease would be by no means diminished, though the actual percentage of cases of infection after exposure would probably be a great deal lower.

Where I have spoken on several occasions at varying intervals at a camp, dépôt, or training centre for soldiers, I have been informed by the commanding officers that, after putting before them the results of these diseases and exhorting them by everything that a young man particularly holds sacred—his honour, his patriotism, his chivalry, and his sportmanship—to keep straight, the first result of the lecture has been to induce a certain number of men to report sick who had previously been concealing disease; a second result was that, so long as the particular unit to which the lecture had been addressed remained, there was a diminution varying from 50 to 80 per cent. in the number of cases of venereal disease reported.

If prophylactic outfits are issued and prophylaxis taught in the army, it stands to reason that the practice must be extended to civilians. Workers in munition factories are nearly as important as soldiers in the fighting line, and among them there is a fairly extensive prevalence of the disease. Further, if these methods are taught and put before men, it follows that they must also be put before women, a prospect from which I am not ashamed to say I recoil with horror.

In giving this statement I have put on one side every question of religion, morality, or aesthetics, and have confined myself simply to what as a physician and man of the world I consider likely to happen.

E. B. TURNER, F.R.C.S.

British Medical Journal.

SATURDAY, FEBRUARY 16TH, 1918.

ARMY MEDICAL RECORDS.

LET us begin by saying that we regard statistics with a reverence which might win the approval of Professor Karl Pearson and the keeping of records with a respect that would excite the admiring envy of a civil service official. But virtues carried to excess become vices, and the multiplication of elaborate notes made with a view to the assembly of facts and statistics warranting conclusions may easily end in such an unmanageable accumulation of documents as even the wide buildings of the British Museum shall not contain, nor all the calculating machines of all the statisticians reduce to even the semblance of order. To be set to make records, perhaps more than one copy, which the recorder feels certain can only cumber space that might more profitably be given to growing potatoes, is a drudgery to take the heart out of the most eager and industrious. Panel practitioners may judge from their own little piles the mountain the Insurance Commissioners and their clerks have already accumulated. The clerks are not to be blamed; it is the inevitable effect of the whole training of a civil service clerk to attach great importance to the document and little to the act recorded in the document; their nature is subdued to what it works in, like the dyer's hand. Only a few rare spirits escape, who, living down the suspicion of their colleagues, eventually become peers or undergo some less honorific form of extinction. But if the yoke of the Insurance Commissioners is heavy, the Army Medical Department put more to our yoke, and if the Commissioners chastise with whips the Army chastised with scorpions. Unless an officer commanding a hospital, as was no doubt the case in the majority of instances, put the clinical work first, even though the clerical work should suffer, medical officers might, under the old system, have to spend so much time in clerical work (note-taking, copying, etc.) that they saw little of their patients.

We would not be misunderstood. We fully recognize the importance of proper clinical records of soldiers who become patients of the Army Medical Service. They are of importance from at least three points of view. First, a sufficiently complete and accurate record of what has befallen a man and of the treatment he has received from each medical officer and in each medical unit through which he has passed is important for the welfare of the individual. Owing to the conditions inseparable from medical work with an army in the field, the man must pass through a series of medical hands, and it is important that each succeeding medical officer should know not only the nature of the injury, which is often quite obvious, but should have also a summary note of the treatment applied at the various stages through which the man has passed before he reaches a home hospital. It is especially important that the information received with the man at the home hospital, where his final treatment is to be carried out and where possibly a primary or secondary operation must be undertaken, should be sufficiently detailed, in chronological order. This is necessary in order to enable the surgeon under whose care he then comes to understand the history of the case and the nature of the attempts made during the various stages to put him in the way of recovery. It is also of importance that any system of records should work backwards; that is to say, medical officers with the armies abroad should be able to learn the after-histories of cases in order that they may be able to estimate the value of various methods of treatment adopted during the early stages of injury or disease.

In the second place such records will form the statistical basis of the medical history of the war, and during its progress they provide valuable data for the investigation of the prevalence of various types of disease and of the results of various forms of treatment, whether of disease or injury.

In the third place, the records will be of permanent national value in dealing with the vast number of claims for pensions and allowances which are arising now, and will arise in the future, and perhaps long after the war, among civilians who may attribute subsequent ill health to alleged previous disability produced by war services.

The case sheets, diet sheets, and the many other medical forms previously used in the army, though they may have been suitable to military hospitals in time of peace, were not well adapted to the new conditions created by the immense expansion of the armies, the general employment of medical officers drawn from civil life, and the establishment of very numerous auxiliary hospitals staffed by civilian practitioners unfamiliar with army forms and procedure. If the importance of each medical officer doing his share in the preparation of a complete record of each patient has not always and everywhere been fully appreciated, this may be set down, in part at least, to the cumbersome and vexatious clerical machinery which grew out of the old system, but which it is now decided shall give way to a simplified system of note-taking devised for the Army Medical Service by the statistical department of the Medical Research Committee.

The system devised by the official statisticians is founded on the new field medical card, issued on June 1st, 1917. This is intended to serve as a condensed diary of the patient's hospital career at the seat of war. The first entry on it is made by the Field Ambulance; it gives—in addition, of course, to the number, name, rank, and unit—the date of the wound or onset of illness, a note of the administration of antitetanic serum or morphine, and the diagnosis. The card is enclosed in a stout envelope, which is tied on to the man's tunic, and goes with him to the casualty clearing station. At that unit, as at the base hospital, any alteration or addition to the diagnosis is noted, and the inside of the folded card affords space for clinical notes. The envelope contains spaces for particulars of the ambulance train, convoy, and hospital ship by which the man is transferred, as well as for information regarding his special needs in transit. Temperature charts or additional notes may be sent in the envelope. If this field medical card is properly kept through the various stages, the patient reaches the home hospital with a brief clinical record of the early stages of his case. On his admission to an oversea base hospital another card—the index card—is issued. The necessary details of name, rank, unit, and so forth having been filled in by orderlies in the office, the card is taken to the ward, and comes under the charge of the medical officer, whose duty it is to fill in the diagnosis, with notes of any operation and its result, and of all complications in order of occurrence, and a brief summary of other important facts, authenticated

by his signature. When the patient reaches a home hospital from overseas, a similar card, printed in red, is made out for him; an index card of the same form, but printed in black, is used in home hospitals for men not belonging to an expeditionary force. The field medical card and the index cards eventually reach the Medical Research Committee, which arranges and files them for future reference.

The new system seems to have been carefully worked out in its application both to the expeditionary forces and to home hospitals. The three (or two) cards* taken together obviate, as we understand, the necessity of maintaining the old medical case sheet, which is no longer required, except for cases of special importance or interest. By their use the medical officer's note-taking for official purposes seems to be reduced to a minimum. For the reasons given above it is of the first importance that this minimum should in all cases be supplied. We are informed, however, that the statistical department of the Medical Research Committee views the disappearance of the case sheet with some apprehension, on the ground that in numerous instances it is the sole source of information on the previous history of the patient, information which may be of first importance in adjudicating on a pension claim. The Committee considers that ideally it would be desirable that the case sheet and the appropriate index card or cards should be maintained for every patient.

In addition to this uniform system, applicable to all patients, another more elaborate system has been set up to facilitate inquiries into special classes of cases, and there has, perhaps, been some confusion in the minds of some medical officers between the ordinary and the special system. Special note-taking schedules have been supplied by the Medical Research Committee to be used for grouping the records of special types of cases the treatment of which is being studied by chosen medical officers. These special subjects now make a rather long list, as they include wounds of joints and fractures of long bones; amputations; wounds of the head, chest, and abdomen; functional nervous disorders; injuries of the spine; disorders of the heart; nephritis; and gassed cases. Hospitals in France are supplied with post-cards asking home hospitals to transmit the schedules, and the information so conveyed to France has been used already in several important reports and articles upon selected groups of cases; some have been published, and others given to the conference of allied services in Paris. In particular directions treatment abroad has in this way either been confirmed as valuable or modified in the light of experience. Effort has been made so to frame the schedules as to give the minimum of trouble to the medical officer asked to fill them up. Special appeal is made to medical officers at home to give everywhere their cordial co-operation, but it is stated that a large percentage (nearly 70 per cent.) of the post-cards filled up and actually sent with patients from France are lost or ignored at the home hospitals.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

At a meeting of the Executive Committee of the Belgian Doctors' and Pharmacists' Relief Fund on February 7th it was decided to issue a circular letter to the medical and pharmaceutical professions appealing for contributions to maintain the fund. It was agreed to send to the Commission for Relief the sum of £400 to be forwarded to Belgium for the month of February; this compares with the sum of £300 sent monthly during last year. The Honorary Secretary, Dr. S. S. Sprigge, stated that since the last meeting the General Committee had been joined by Sir A. Garrod Thomas, M.D., M.P.; Lieut.-Colonel Adami, F.R.S., of the Canadian Army Medical Corps; Sir Thomas Barclay, Director of Southall Bros. and Barclay; and Mr. Harry J. Fisk, representing Parke, Davis, and Co. We may take this opportunity of saying once more that the need for renewed contributions to the fund is urgent. The previous appeal—that made in November, 1914—produced a sum of just under £21,000. By judicious investment during its gradual disbursement a further sum of £1,000 was earned in interest. At first the chief expenditure was made to relieve the necessities of the Belgian doctors and pharmacists, who, frequently accompanied by their families, had taken refuge in this country. They were helped to become self-supporting, and acting on the advice of Mr. Hoover, at that time director in Europe of the Commission for Relief in Belgium, and now Food Controller in the United States, it was resolved to send substantial sums monthly for disbursement in Belgium to doctors and pharmacists working in that country. These disbursements were made through a representative committee of Belgian doctors and pharmacists sitting in Brussels, and the Committee in this country is satisfied that the Committee in Belgium has acted throughout with prudence and discrimination. At the meeting of the General Committee of the Belgian Doctors' and Pharmacists' Relief Fund reported on February 2nd, p. 178, Dr. Des Vœux, the honorary treasurer, made a moving appeal on behalf of our Belgian colleagues. The act of the Belgian nation in withstanding the armed forces of Germany was, he said, a deed of courage beyond praise, and laid this country under a special debt of gratitude, because it gave Great Britain time to throw into Flanders a force which saved the Channel ports from occupation by the German legions. What the occupation of those ports would have meant to our empire could, he said, be deduced from the troubles which have followed the occupation of Antwerp, Ostend, and Zeebrugge. He showed from an analysis of the donations that subscriptions had been received from Great Britain, Ireland, Canada, Australia, South Africa, India, and some other parts of the British empire. The letter from Mr. Poland, who succeeded Mr. Hoover as director in Europe of the Commission for Relief in Belgium, published in the British Medical Journal of December 29th, 1917 (p. 864), afforded ample proof of the need for the continuance of the Fund. "If its supporters," Mr. Poland wrote, "knew how much actual suffering they had allayed, how much potential, moral, and physical suffering they had prevented, they would not cease to continue their support, many as are the claims now made upon them. This office is a gulf into which pours the stream of Belgian misery, and it would not be difficult to supply you with hundreds of testimonials as to the state of things there. . . . All the charities in Belgium are well administered. There is no leakage by the way. Only those who deserve it get relief, and never more than they need. . . . The knowledge that their associates in England have not forgotten them is an inspiration to the whole profession at a time when moral support is perhaps as much needed even as food." We may add that, owing to the self-sacrificing exertions of the treasurer, Dr. Des Vœux, and his secretary, Miss Brock, who has refused to receive any remuneration for her services, the Fund has been most economically administered, the total expenditure under this head for the first two years having amounted to only £50. Subscriptions may be sent to the Treasurer, Dr. H. A. Des Vœux, 14, Buckingham Gate, London, S.W.1. Cheques should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, and crossed "Lloyds Bank, Ltd."

* The cards, we are informed, are officially known as follows: A.F. W 3118, Field Medical Card. A.F. W 3162, used in British hospitals abroad. A.F. W 3243(A), printed in red; filled up in home hospital for men from B.E.F. A.F. W 3243, printed in black; for men admitted to home hospital not from B.E.F.

ALCOHOL AND FOOD ECONOMY.

IN the fourth of the series of public lectures at University College, London (February 11th), Professor A. R. Cushny dealt with the value of alcohol as food. Strictly speaking, he said, alcohol must be regarded as a food in that the body could utilize it for heat and as a source of energy. In the completeness with which it was used up in the tissues it resembled sugar closely, and indeed sugar was a more complicated alcohol. Many substances, however, while carrying energy into the body, produced other effects, such as digestive or brain disturbance, which seriously detracted from their food value, and the drawback of alcohol was its effect upon the brain and upon other tissues ultimately. If alcohol could be obtained from such a source that it did not involve the destruction of other foods there might be an argument in favour of its use to some extent, but alcohol was obtained from cereals which could be used for food purposes. He had been unable to obtain the figures for beer production in 1917, and statements in Parliament on this point were conflicting. He had been compelled, therefore, to fall back upon the figures for 1916, when 26 million barrels of beer were brewed, and 955,000 tons of barley, 57,000 tons of grits, and 120 000 tons of sugar were used by the brewer. Only 60 per cent. of the barley, however, could have been made available for human consumption, but the grits could have been used entirely, and as for the sugar, although the Chancellor of the Exchequer had declared that it was not utilizable, many held a different opinion; in any case it had to be imported, and an equal amount of finer sugar might just as well have been imported in its place. The materials used for brewing, therefore, would have provided 750,000 tons of human food, and the remaining 40 per cent. of the barley would have furnished 382,000 tons of cattle food. It remained to determine the food value of the beer. This for the total barrelage for the year was placed at 2,200,000 million calories; that of the food available for human consumption destroyed in brewing was 2,651,000 million calories, making a loss of 17 per cent. In the case of the food for cattle, 283,000 tons of which were available after the brewing process, the loss in calorie value was similar—18 per cent. A still greater loss was apparent if the value of the grains in protein material were taken. The protein value of the barley and grits available as human food was 53,625 tons; that of the beer was only 4,250 tons, a loss of 90 per cent. The food available for cattle, on the other hand, represented a gain in protein after brewing, but in giving protein to animals only about one-sixth was returned. The lost protein and calorie value in the diversion of foodstuffs to the making of beer represented what was used up by the grain itself and the yeast plant. The embryo of the grain was caused to grow, which it did upon its own stock. At a certain point the growing grain was killed and put into the mash tub and infected with yeast, which grew rapidly, using up the original foodstuff. The amount of food taken up by the plant and by the yeast in growing would feed London for three weeks.

THE MEAT RATION.

THE Food Controller has now published the scheme for meat rationing for London and the Home Counties, which will come into force on February 25th. The meat card contains four coupons for each week; three of these may be used for uncooked butcher's meat, upon which each adult may spend 1s. 3d. a week. The fourth coupon may be used to purchase other meatstuffs—such as poultry, game (including venison), bacon, rabbits, sausages, cooked meats, and tinned meats—which are rationed by weights regarded in each case as the equivalent of 5 oz. of uncooked butcher's meat containing an average amount of bone. These equivalent weights have been published in a table. The general result is to make the weekly adult ration 1s. 3d. worth of butcher's meat—which includes pork and suet—together with other meatstuffs equivalent to 5 oz. of butcher's meat; but there is nothing to prevent all four coupons being used for buying meats other than butcher's meat. Children under 10 will be entitled to half the above ration. Lard is not rationed, but is very scarce, as is also margarine; since butter also is very difficult to obtain it seems certain that the diet available will be deficient in fats. The scheme is admittedly experimental, and in particular the table of equivalent weights is subject to revision. Its effect on the amount of meat which will be available for a household is very difficult to estimate. A family consisting of a man, his wife, and two children over 10 years old would be entitled to spend 5s. a week on butcher's meat, and the Food Minister seems to assume that for this they will be able to buy 3¾ lb., which is at the rate of 1s. 4d. a lb. We have seen no guarantee that meat will be available in this quantity or at this price per lb. The metropolitan district has been chosen as the *corpus vile* of the experiment, but what it is to suffer ten days hence Lancashire and the rest of England may have to experience next month.

SIR RICHARD CROFT, BT.

IN his interesting account of Sir Richard Croft, who shot himself on February 13th, 1818, as a result of depression consequent on the death in childbirth of his patient Princess Charlotte of Wales and the stillbirth of her male child, the anticipated heir to the throne of George IV, on November 5th–6th, 1817, Dr. S. D. Clippingdale [1] not only gives more detailed information about this student of St. Bartholomew's Hospital than is contained in the *Dictionary of National Biography* but throws a more favourable light on this unfortunate obstetrician than that in which he is usually shown. Sir Richard Croft did not take any diploma, but as this was not obligatory in his day, he was not then quite such an irregular practitioner as would be the case now. His fashionable practice no doubt owed much to his marriage to the elder twin daughter of Thomas Denman, the leading accoucheur and father of the future Lord Chief Justice, but he was able to take advantage of his opportunities, and in virtue of his position was selected, with Dr. John Sims and his brother-in-law, Matthew Baillie, to look after the Princess. This turned out to be a difficult and anxious task, and a path in the grounds of Claremont Palace is still shown where Sir Richard paced in an agony of doubt as to what should be done for the best, thus showing how libellous and cruel was the accusation of neglect made against this sensitive gentleman. The tragic death of the Princess raised a public outcry, to which Jesse Foot, the malicious biographer of Hunter, possibly stimulated by Matthew Baillie's post of responsibility, contributed two letters on the necessity for a public inquiry, and stated on the authority of the nurse that when the child was born the doctors were all asleep. The king ordered a necropsy, with the result that Sir Everard Home and Sir David Dundas reported that everything had been done for the best. But in spite of every consideration by the royal family and his many patients the tragic death of the Princess weighed heavily on Croft, and after an exhausting journey he put an end to himself, "Love's Labour's Lost" being beside him, open on the page containing the words "God save you; where is the Princess?"

MISSION OF AMERICAN SPECIALISTS.

OUR American friends when they entered the war began at once to make very elaborate preparations for their campaign. Among these preparations were inquiries directed to obtaining first hand information as to the experience of their European allies. As an instance of the care taken to examine all problems from every point of view may be mentioned the mission sent to Europe

[1] *St. Bartholomew's Hospital Journal*, London, 1918, xxv, 35–37.

some months ago by the American Surgeon-General, General Gorgas, to study certain special subjects. The mission consisted of Colonel T. C. Lyster of the United States Army Medical Corps, Major Harris P. Mosher of Boston, a leading laryngologist with a world-wide reputation, Major George E. de Schweinitz, the well-known ophthalmic surgeon of Philadelphia, and Major Isaac H. Jones, the noted otologist of the same city. Their mission was to observe and report on certain special military problems, particularly as regards the surgery of the eye, ear, nose, throat, and brain, and plastic and oral surgery, and to give special attention to the medical problems of aviation. They have spent three months in Italy and France, where they visited the American and British formations, as well as the French. The mission passed through London recently on its way home, and by the courtesy of Sir StClair Thomson a number of medical men in London had the opportunity of meeting its members. Although its stay in London was short, as it is due back to report at head quarters in Washington, the mission had time, amongst other institutions, to study the installation for facial surgery at Sidcup, and the working of St. Dunstan's Hostel for Blinded Soldiers and Sailors. Its members were much interested in the re-education of the blind, and were good enough to say that the work being done at the Queen's Hospital at Sidcup is not excelled anywhere. There is a suggestion that some American surgeons may be sent there for study. In addition to the pavilion for British soldiers, the Queen's Hospital at Sidcup is now equipped with pavilions for Canadian, Australian, and New Zealand soldiers under surgeons belonging to those Dominions; the addition of an American pavilion would emphasize the happy combination of people speaking the same tongue and fighting for the same cause.

MEMORIALS TO TWO MEDICAL WOMEN.

STEPS have been taken to raise a memorial to the late Dr. Elizabeth Garrett Anderson from the women of England. It will be devoted to the endowment of beds in the New Hospital for Women, Euston Road, which she founded in 1866. A sum of over £9,000 has already been received, and a number of women's colleges and schools have undertaken to raise £7,000. The honorary treasurer of the fund is Lady Hall, who may be addressed at the hospital. A committee has been established in Edinburgh, with Mrs. Johnston, 10, Wester Coates Avenue, as honorary secretary, to found a memorial to commemorate the life and work of the late Dr. Elsie Inglis. It is proposed to enlarge the hospice in Edinburgh, which since she established it in 1899 has done good work as a nursing home for poor women, and to endow it for the instruction of women medical students. It is also proposed to establish in Serbia after the war a memorial hospital and training school for Serbian nurses and to maintain during the war the Elsie Inglis Hospital in France.

CENTRAL HEALTH ADMINISTRATION IN FRANCE.

DR. MOURIER, who represents the Gard in the French Chamber of Deputies, has succeeded M. Godart as Under Secretary for Health in the Ministry of War. M. Godart held that office for two years and a half. His successor was a member of M. Painlevé's Cabinet, and, as a member of the Army Commission, was the author of an act giving autonomy to the French Army Medical Service. There was some expectation that M. Clemenceau, in fulfilment of the policy he has long advocated, would take this opportunity of establishing a ministry of hygiene and public health, and the name of M. Augagneur, a member of the faculty of medicine of Lyons, at one time minister for the navy, was mentioned in connexion with it. The arguments in favour of such a course were similar to those which have been used for the establishment of a ministry of health in this country, the chief being the multiplication of medical departments in various ministries—the ministries of the interior, of education, of labour, and of agriculture. The advocates of the change, driving the matter to its logical conclusion, seem to have desired that the army medical service, and that of the navy also, should be placed under the direction of the proposed ministry of hygiene. It was, however, admitted that this department alone would be sufficient to engage the attention of an independent ministry. It is probably largely for this reason that the simple course of merely replacing M. Godart has been followed, but it is interesting to note that the question of establishing a ministry of health in France has been raised at the very time when it is engaging attention in this country, and for similar reasons.

THE ARMY MEDICAL SERVICE TO-DAY.

IN an article on "The Army Medical Service To-day," published in the JOURNAL of February 2nd, p. 154, it was said that the continued enforcement of old army regulations requiring medical officers to prepare documents in triplicate in their own handwriting had aroused criticism. We are informed that the requirement as to autograph reports is not made in compliance with army regulations. This notification will, we have no doubt, be a relief to many medical officers.

Medical Notes in Parliament.

The New Session.

THE new session of Parliament was opened on Tuesday by a speech from the Throne, wherein His Majesty concentrated attention upon the war. The phrase attracting most notice was that in which the Sovereign spoke of the struggle as having reached "a critical stage which demands more than ever our united energies and resources." The interest in the debate centred mainly round Mr. Asquith's inquiries as to the Versailles Council and Mr. Lloyd George's reply.

The Army Medical Service.—After the storm thus raised had subsided, Sir W. Watson Cheyne said that various causes were at work antagonistic to the interests of the country; there was too much yielding to expediency, undue delay in making decisions and in taking action on them; parochial instead of wide views were allowed to prevail; underhand intrigue was not put down with a firm hand; and incompetence was condoned, and in some cases seemingly rewarded. While admitting that Government departments were overworked, he expressed the opinion that there must be something wrong when matters of importance which could be settled in a short time were kept under consideration for weeks and months. He referred to the delay in the publication of the report of the Committee which had made inquiry with regard to the medical service in France. He had been informed that the matter was under the consideration of the Army Council. It appeared that a copy had not been sent to France, and the consideration of the Army Council had now occupied two months. He thought the delay might be in part due to the fact that there was no medical member on the Army Council, and expressed the opinion that had the Director-General A.M.S. been a member of the Council when the medical arrangements were being devised there would have been no Mesopotamia scandal. He paid a warm tribute to the splendid work being done by medical officers in the army and by the sisters and nurses, and pointed out the great saving of life effected by the prevention of disease, especially typhoid fever.

Air Force Medical Service.—Sir W. Watson Cheyne went on to say that quite early in its work the Air Board had recognized the need of a medical service for the new force. A committee was appointed to advise, but action upon its report was delayed and it became known that some sort of intrigue had been going on with the view of preventing the establishment of a special service. Thereupon a second committee was appointed, which tried to keep the two older services in touch with the air service, and a compromise had been reached. The delay of many months such as had occurred was very serious; airmen were losing their lives for want of a proper medical service, and during the period of delay medical officers could not be trained to cope with their illnesses. Though he did not

think much of the compromise, he hoped that it would allow the air service to begin at once to train medical officers. If the compromise broke down, it would be possible to fall back on the original complete scheme.

The Reform Act.

THE Council of the British Medical Association, at its meeting last week, took steps to draw the attention of Divisions and Branches, both at home and abroad, to the importance of the representation of the medical profession on public bodies, especially at the present time, in view of the reconstruction proposals known to be in contemplation or likely to be proposed in various parts of the empire. As a preliminary to any further remarks upon the subject, it seems well to give a general account of the effect of the Reform Act placed on the Statute Book last week.

The Act will, it is estimated, add 8,000,000 voters to the electorate, of whom 6,000,000 will be women (5,000,000 married and 1,000,000 single). The total number of voters on the register will thus be brought up to 16,000,000, or, roughly, 1 in 3 of the population. When the Reform Act of 1867 was passed the proportion was 1 in 12. The enlargement in 1884, which brought in agricultural labourers, increased the proportion to 1 in 7.

Under the system which has now come to an end there were seven franchises carrying with them certain rights of plural voting. Under the new Act there are only three qualifications. The first, and numerically the most important, is the residential vote; the second, the business vote, and the third, the university vote. In future a man may not vote at a general election for more than one constituency for which he is registered by virtue of a residence qualification, or for more than one constituency for which he is registered by virtue of other qualifications of whatever kind. If he has other qualifications in addition to the residential, he must choose between his business qualification and his university right; he has also a right of preference to exercise a livery vote.

Leaving out of consideration for the moment men in the fighting forces, the qualification of men for voting is defined as 21 years of age and six months' residence or occupation of business premises. The university qualification is the attainment within the above age limit of a definite standard which in England and Wales is the taking of an ordinary degree. The election in a university will be the method of the proportional vote.

For parliamentary purposes a woman, married or unmarried, who for six months has been a householder or tenant of unfurnished rooms or the occupier of land or business premises of £5 annual value, has a vote if she has reached the age of 30 years. A woman also has a vote for local government purposes on the same qualification as a man—on attaining the age of 21. A married woman of not less than 30 years of age has a vote for parliamentary and local government elections where her husband is the tenant and he is entitled to vote as a local government elector. If a woman is 30 years of age and a partner in a business, she gets a vote if the annual value of the business premises occupied is sufficient to allow £5 for each partner. A woman may have a parliamentary vote for a university if she is 30 years of age, and either would be entitled to be so registered if she were a man, or has passed the requisite examinations and observed the conditions as to residence at the university. If a woman has one parliamentary vote in respect of her husband's qualification and another in connexion with her own business premises, she may not vote at a general election more than once, unless she has a university qualification, in which case she may exercise a second vote.

The period of qualification for the vote, both for men and women, has been reduced from twelve months to six. One period ends on January 15th and the other on July 15th; qualification is made easier by certain special provisions as to removals. The arrangements afford facilities for successive occupation, but puts difficulties in the way of the manufacture of the faggot voter.

The age qualification for naval and military voters has been fixed at 19 years. These war-service voters are to be registered for the constituencies for which they would have been qualified (with the concession as to age) but for their service. The provision applies also to merchant seamen, pilots, and fishermen, and persons engaged on Red Cross work, or other work of national importance abroad or afloat.

Two disqualifications have been made. Conscientious objectors to military service are disqualified during the war and for five years afterwards unless they satisfy the central tribunal that they have fulfilled certain conditions such as employment in work of national importance. Aliens are cut out, the right of voting being limited to British subjects. The receipt of poor relief will not be a disqualification; residence in a workhouse does not give the qualification, but a limited stay in a workhouse owing to temporary exigencies does not constitute a barrier to voting qualifications.

The system of registration has been entirely changed. Two lists are to be prepared every year—in the spring and in the autumn. The cost of registration expenses will fall in half shares on the local rates and on the Treasury.

Nomination day is to be the same in all constituencies and all pollings are to take place on one day. Separate lists of the war-service voters are to be prepared. Ballot papers are to be sent to absent voters to be marked by them and returned with a declaration of identity, and to meet their case an Order in Council may be made to delay the counting of votes at any election for a period no exceeding eight days after the close of the poll.

The provisions of the Act, which have the effect of very largely reducing election expenses, involve a change which may prove to be of considerable importance to the medical profession. First, to lessen the danger of vexatious contests, each candidate is required to deposit £150, to be forfeited if the number of votes polled by him does not exceed one-eighth of the total number polled. The returning officer's expenses are to be paid by the Treasury. The maximum scale of election expenses has been fixed at 7d. for each elector in a county constituency and 5d. in a borough, but a candidate may, in addition, pay his agent a fee of £70 in a county division and £50 in a borough. It is impossible to make any close estimate of the cost of parliamentary elections in future, for under the redistribution scheme the size of constituencies still varies. The aim, however, was to take 70,000 inhabitants as a general unit of population for each constituency. The reduction in the cost as compared with the past will be great. Under the old system candidates had to bear a proportionate share of the official election expenses. The security that had to be deposited with a returning officer was in the case of a county or a district on a scale beginning at £150 where the registered electors did not exceed 1,000 and rising to £1,000 where the electorate approached a total of 30,000 voters. In the case of boroughs the deposit was £100 where the registered electors did not exceed 1,000 and £700 where the total approached 30,000. The candidate's personal expenses allowed for Great Britain were for a single candidate in a county division where the electorate did not exceed 2,000 voters, £650; where the electorate did not exceed 14,999 voters, £1,430, the intermediate figures being roughly according to a scale. For parliamentary boroughs the figures were for a single candidate where the electorate did not exceed 2,000 voters, £350; where the electorate did not exceed 14,999 voters, £740. The figures for joint candidates where the electorate did not exceed 2,000 voters was £525; where the electorate did not exceed 14,999 voters, £710. The Act contains a prohibition against outside associations flooding constituencies with oratory and literature. On the other hand, candidates are assisted because they are allowed free postal communications to the amount of not more than 2 oz. to each elector.

The qualifications and conditions as to local government elections remain very much the same as heretofore. There is a relaxation as to length of residence in respect of a candidate for local offices, but very few other alterations have been made. Some modifications were needed both as regards Scotland and Ireland. Scotland preferred to retain its existing local government franchise, which was rather wider than that for England and Wales, but as the women's vote was so closely concerned with local government, the latter had to be modified in Scotland for the purpose of creating women voters.

The redistribution scheme adds 37 members to the House of Commons provided that there is no diminution or withdrawal of Irish representation from Westminster in the interval. London boroughs gain three members, other boroughs 33, and the universities six; the counties lose five members. Of the 37, England receives 31, Wales 2, Scotland 2, and Ireland 2. The total membership of the House of Commons is thus brought up to 707.

THE late Dr. Edward Burd of Shrewsbury left estate of the gross value of £120,286.

OF the fifteen successful candidates at the recent examination for sanitary inspectors held by the Sanitary Inspectors' Examination Board thirteen received their instruction at the National Health Society and two at the Royal Sanitary Institute.

THE WAR.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Drowned.

LIEUTENANT K. H. BHAT, I.M.S.(T.C.).

Lieutenant Kalyanpur Harihar Bhat, I.M.S., was reported, in the casualty list published on February 6th, as "missing, believed drowned." He was educated at Madras University and at Charing Cross Hospital, took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1916, and joined the I.M.S. as a temporary lieutenant on March 11th, 1916.

LIEUTENANT C. C. W. MAYS, R.A.M.C.(T.C.).

Lieutenant Charles Cecil William Mays, R.A.M.C., was reported as "missing, believed drowned," in the casualty list published on February 9th. He was educated at Sheffield Medical School, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1900. After filling the posts of resident assistant medical officer of Woolwich Infirmary and of resident medical officer of Ecclesall Union Infirmary, Sheffield, he went into practice at Commonside, Sheffield. He had only recently joined the R.A.M.C. as a temporary lieutenant.

It has been announced that the transports *Aragon* and *Osmanieh* were torpedoed and sunk in the Mediterranean, the former on December 30th, with the loss of 610 lives, the latter on December 31st, with the loss of 199 lives. Eight nurses were reported as lost in the *Aragon*.

Died of Wounds.

CAPTAIN T. F. CRAIG, R.A.M.C.

Captain Thomas Forrest Craig, R.A.M.C., died of wounds received in action, on board a hospital ship, on February 2nd. He was the second son of the late Rev. A. M. Craig, of Kelso, and was educated at Edinburgh University, where he graduated M.B. and Ch.B. in 1910; afterwards he served as house-surgeon of the Whitehaven and West Cumberland Infirmary. He had taken a temporary commission in the R.A.M.C. a little over a year ago.

Died on Service.

Captain J. K. Palling, C.A.M.C.

Prisoner of War.

Captain H. J. Davidson, M.C., R.A.M.C. (temporary).

DEATHS AMONG SONS OF MEDICAL MEN.

Bigger, John A. W., Second Lieutenant East Surrey Regiment, third son of Dr. W. G. Bigger of Streatham, reported missing May 8th, 1917, now presumed killed on that date, aged 24.

Cronyn, William Benn, Captain Army Veterinary Corps, third son of the late Dr. John Cronyn of Dublin, died of influenza and meningitis at Marseilles on February 1st. He was educated at Foyle College, Derry, took the M.R.C.V.S. in 1887, and joined the A.V.C. early in the war.

Fenner, Athelstan Lennox, Lieutenant-Commander R.N., only surviving son of Dr. Robert Fenner of Manchester Square, London, died on service, January 31st. He joined H.M.S. *Britannia* in 1900, and reached his present rank on January 30th, 1915. He went from Portsmouth to Hong Kong in command of submarine C 37, which, with C 36 and C 38, made what was then a record voyage. During the war he had served chiefly in submarines, and had received the Order of St. Stanislau. His younger brother, Lieutenant Cyril Fenner, Scots Guards, was killed in the battle of the Somme in September, 1916.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

HONOURS.

A SPECIAL Supplement to the *London Gazette*, issued on February 7th, contained a list of awards and promotions for services in connexion with the operations in Mesopotamia. The following medical officers are included in the list:

To be C.M.G.

Colonel (temporary Surgeon-General) A. P. Blenkinsop, C.B., A.M.S.

D.S.O.

Lieutenant-Colonel T. B. Kelly, I.M.S.

Majors (temporary Lieutenant-Colonels): R. M. Barron, I.M.S., F. P. Connor, I.M.S.

Majors (acting Lieutenant-Colonels): C. A. Gourlay, I.M.S., J. F. Whelan, R.A.M.C.

Major E. A. Roberts, I.M.S.

Military Cross.

Captains: H. Lal Batra, I.M.S., J. W. Dalglish, R.A.M.C. (S.R.), M. Das, I.M.S., P. K. Gilroy, I.M.S., J. W. Maclean, R.A.M.C.(S.R.).

Temporary Captains: R. C. Begg, R.A.M.C., R. D. Davy, R.A.M.C., R. H. Hodges, R.A.M.C., W. E. Hopkins, R.A.M.C., R. Y. Stones, R.A.M.C.

Lieutenant W. P. Hogg, I.M.S.

To be Brevet Lieutenant-Colonel.

Major (temporary Lieutenant-Colonel) W. H. Hamilton, D.S.O., I.M.S.

Major (acting Lieutenant-Colonel) J. C. H. Leicester, I.M.S.

Major W. H. Leonard, I.M.S.

To be Brevet Major.

Captains G. G. James, I.M.S., J. A. S. Phillips, I.M.S.

The Supplement also contains as amendments the following correct descriptions of officers whose rewards were published in the Supplement to the *London Gazette* dated January 1st, and in our issues of January 5th and 12th, 1918:

Awarded C.M.G.: Colonels Rupert M. Downes, A.A.M.C., Arthur T. White, A.A.M.C.

Awarded D.S.O.: Lieutenant-Colonel Charles E. Wassell, A.A.M.C., Major George W. Miller, R.A.M.C.

Awarded M.C.: Quartermaster and honorary Captain John H. Maunder, R.A.M.C.

COMMENDED FOR SERVICES.

A Supplement to the *London Gazette* issued on February 12th contains a list of officers whose names have been brought to the notice of the Secretary of State for War by the Army Council for very valuable services rendered in connexion with the war up to December 31st, 1917. The following medical officers are included in the list:

Surgeon-Generals: Sir David Bruce, C.B., F.R.S. (ret. pay, late A.M.S.), F. J. Jencken, A.M.S.

Colonel and honorary Surgeon-General M. W. Russell, C.B. (ret. pay, late A.M.S.).

Colonels: K. Cameron, C.A.M.C., W. Coates, C.B., V.D., R.A.M.C.(T.F.R.) (ret.), F. G. Finley, C.A.M.C., J. Griffiths, T.D., R.A.M.C., C. H. Melville, A.M.S., C. P. Oliver, K.H.P., T.D., A.M.S., G. S. Rennie, C.A.M.C., W. A. Scott, C.A.M.C., W. L. Watt, C.A.M.C.

Temporary Colonels: C. A. Ballance, C.B., M.V.O., A.M.S., A. E. Garrod, C.M.G., F.R.S., A.M.S., H. H. Tooth, C.M.G., A.M.S. (Lieut.-Colonel R.A.M.C.T.F.).

Temporary honorary Colonel Sir J. Collie, A.M.S.

Lieut.-Colonel (honorary Surgeon-Colonel, temporary Colonel) W. M. Roocroft, V.D., R.A.M.C.

Lieut.-Colonels (temporary Colonels): D. M. McWhae, A.A.M.C., K. Smith, A.A.M.C.

Lieut.-Colonels: H. S. Anderson, R.A.M.C., J. Gordon, A.A.M.C., T. Mill, N.Z.M.C., A. de C. Scanlan, R.A.M.C., ret. pay (Reserve of Officers).

Honorary Lieut.-Colonel J. A. Murdoch, A.A.M.C.

Temporary Lieut.-Colonels: A. Balfour, C.M.G., R.A.M.C., J. C. G. Ledingham, R.A.M.C., G. B. Price, R.A.M.C., C. M. Wenyon, R.A.M.C.

Temporary honorary Lieut.-Colonels: G. S. Buchanan, R.A.M.C., H. R. Kenwood, R.A.M.C. (Major R.A.M.C.T.F.), J. Robertson, R.A.M.C.

Major and Brevet Lieut.-Colonel R. M. Carter, I.M.S.

Major (acting Lieut.-Colonel) J. A. Amyot, C.A.M.C.

Major T. W. Griffith, R.A.M.C.

NOTES.

FAMILY HONOURS.

AMONG the officers who received decorations at the hands of the King at the investiture at Buckingham Palace on February 9th were three sons of the late Sir Thomas Crawford, K.C.B., Director-General of the Army Medical Service from 1882 to 1889. Two of them (Captains T. M. and H. G. Crawford), who received the M.C., both belong to the R.A.M.C.; a third son, Major J. D. Crawford, Indian Army, received this decoration and the D.S.O. also. Sir Thomas Crawford had six sons; of the other three, Lieut.-Colonel D. J. Crawford, R.A.M.C., received the D.S.O. some time ago, and Captain H. M. L. Crawford the M.C. Another brother, Engineer Commander W. R. Crawford, R.N., was mentioned in Jutland dispatches. It is probable that not many families can show such a record, but last week it was announced that the M.C. had been conferred on Temporary Captain E. A. T. Green, R.A.M.C., whose brother, Mr. R. A. Green, Second Lieutenant, Hampshire Regiment, received the same decoration about a year ago. Both are sons of Dr. James Green of Portsmouth, honorary secretary and treasurer of the

Southern Branch of the British Medical Association. We may recall also the distinctions conferred on the two sons of the Bishop of Liverpool, Captain N. G. Chavasse, R.A.M.C., who won the Victoria Cross and posthumously a clasp to the Cross, and his brother, Captain Francis B. Chavasse, R.A.M.C., who received the M.C.

French Wounded from the Aisne.

In a communication made to the last meeting of the Académie de Médecine, Paris, M. Tuffier gave some statistics of the surgical results from the last French offensive on the Aisne. Although the action developed with great rapidity 80 per cent. of the wounded were quickly evacuated. Of the wounds 72 per cent. were produced by shells and 17 per cent. by bullets; 67 per cent. affected the limbs, 16 per cent. the head, and 4 per cent. the abdomen; in the remaining 13 per cent. the wounds were in various other parts of the body or multiple. The general mortality among all cases was 5.18 per cent., but among those wounded in the abdomen it was 61 per cent. The proportion of deaths from gangrene was 3 per 1,000 and from tetanus 0.5 per 1,000. In the majority of the wounded who died death was due to haemorrhage or shock. The system of evacuating and treating the wounded worked very well, so that forty-five days after the beginning of the operations only 1.43 per cent. were still retained in the advanced formations. M. Tuffier attributed this satisfactory result partly to the improved administration already mentioned, partly to the more intimate relations maintained between different surgical units, and partly to immediate disinfection and suture of wounds accompanied by the application of the Carrel-Dakin method.

Dr. Francis D. Boyd, C.M.G., temporary Lieut.-Colonel R.A.M.C., Physician to the Royal Infirmary, Edinburgh, and a member of the staff *à la suite* of the 2nd Scottish Territorial General Hospital, has gone to Egypt on his appointment as Consulting Physician to the British Army there.

England and Wales.

Five Years of National Insurance in London.

At a meeting of the London Insurance Committee on February 7th a quinquennial report was presented covering the work of the committee from the time it was constituted until the end of 1917. The report was mainly a history of the committee's activities which have been reported from time to time in these columns, but some interesting tables of statistics were added. The number of practitioners in agreement with the committee at the end of 1913 was 1,462, and at the end of 1917, 1,453. The total amount of the practitioners' fund in 1913 was £504,570; it fell each year until 1916, when it was £443,199; the number of units of credit rose in the same period from 1,138,569 to 1,465,342, and the amount paid for unit of credit fell from 8s. 10d. to 6s. The number of panel practitioners on military service at the end of 1917 was 252, and five practitioners had been killed in action or had died on active service. A large section of the report was occupied with an analysis of prescriptions, which was only carried to 1916. In that year the number of prescriptions submitted was 3,682,198 (the lowest on record), and the average value of each prescription was 6.37d. The mean number of insured persons as ascertained from the amounts credited for medical benefit in 1913 was 1,447,994, and fell each year until 1916, when it stood at 1,245,521. On the other hand, the mean number of index slips on the register has not shown the same tendency to fall, and in 1916 was 1,572,153. A central scheme is foreshadowed for clearing the index register and preventing a recurrence of such inflation. The number of questions or complaints raised by insured persons against practitioners during the five years was 446, of which 213 were substantiated. Questions raised by practitioners as to conduct during treatment numbered only 17, of which 9 were substantiated. The number of persons receiving sanatorium benefit varied within wide limits, from 801 in the middle of 1914 to 364 at the end of 1917. The waiting list also fluctuated greatly, from 40 or 50 at the end of 1915 to over 500 in the latter part of last year.

Scotland.

Rations in Glasgow.

About a year ago (February 24th, p. 266) we published a report by Miss Margaret J. W. Ferguson comparing the voluntary ration then in force with the ordinary diet of the poorer labouring classes in Glasgow. Miss Ferguson made a further report to the meeting of the Royal Society of Edinburgh on February 4th, giving the results of a further inquiry made in November, 1917, of eight among a number of families previously considered, five of them soldiers' families. They included three men, eight women, and forty-six children. The price of food had not risen since February. Some commodities were cheaper, and the average income had risen 20 per cent. The diet on the average of all families had become more adequate, but this rise was due chiefly to two families whose financial position was markedly better. Excluding them, the average was the same as in February. It appeared that the maximum consumption of bread, about 10 lb. a "man" a week, had been reached. On the present proportion of men, women, and children of the population this corresponded with 7½ lb. a person a week, or a little over 5½ lb. of flour. The cereals other than flour used corresponded approximately to ¾ lb. a person a week. Increased potatoes had not on the average been attended by decreased consumption of bread, and the amount of milk had not decreased. It appears that some 86 per cent. of the energy of food taken was derived from the articles now proposed to be rationed—cereals, meat fats, and sugar. In the food of the class investigated it seemed that unrationed foods could be relied upon to yield only some 14 per cent. of the necessary energy, and it was pointed out that this should be taken into account in framing the compulsory ration.

Ireland.

Treatment of Venereal Disease.

At the last meeting of the Statistical Society of Ireland Professor McWeeney read a paper on venereal diseases and their treatment. The conspiracy of silence with regard to these diseases had, he said, been brought to an end by the appointment in 1913 of the Royal Commission, which reported in 1916. Its more important recommendations were now being put into execution in Ireland under the direction of the Local Government Board. The task of making the necessary arrangements had been imposed on the county councils. The general hospitals ought to be asked to deal with such cases, both as in-patients and out-patients; and, in view of the enormous loss of infant life, maternity hospitals should arrange for antenatal clinics in connexion with the scheme. Inasmuch as a large percentage of cases of blindness, deafness, mental deficiency, and other congenital defects owed their origin to these maladies, it was to be hoped the institutions specially devoted to such cases might see their way to participate in the advantages offered them under the scheme. The pathological laboratories of existing universities and schools of medicine were to be utilized for the diagnosis of specimens sent in by medical practitioners, and the necessary drugs for the treatment of syphilis would be supplied free. All expenses incurred by the local sanitary authority in carrying out the scheme would be defrayed as to 75 per cent. by the Exchequer, leaving only 25 per cent. to be paid by the local authority. In England and Wales schemes under the order were now in operation, covering areas comprising a population of over 20,000,000, and it was to be hoped that in Ireland the matter would also be actively taken in hand.

Vaccination Objectors.

The opposition to vaccination appears to be spreading. At recent proceedings at the Enniscorthy Petty Sessions it was stated that there were 8,000 vaccination defaulters in the union. In the six cases brought before them the magistrates imposed a fine of £1, with 10s. costs and 21s. expenses. Their solicitor said the defendants would go to gaol. In the Gorey Union, where the defaulters are said to number 1,482, the guardians have resolved to ignore the Local Government Board's letter.

Correspondence.

NEW DIET RESTRICTIONS.

SIR,—Since the food rationing scheme has been in force in the Chesterfield area I have been requested with increasing frequency to give permits for excess allowance of sugar, fats, meats, and milk. The cases vary from those which might seem to be desirable, such as extra meat for diabetics, to a general requisition for more sugar where no such allowance is at all called for. It is obvious that a very thankless burden is to be placed on the profession unless very strict limits are set to these demands. I am not aware if the profession will have power to grant such requests, but I feel sure it would be a great help if the council, who gave us a lead on the question of white flour, would also issue a memorandum on the limits that should be fixed to granting these further demands for various foodstuffs.—I am, etc.,

Chesterfield, Feb. 9th. ARTHUR COURT.

*** We understand that representations have been made to the Food Controller with reference to the matter raised in the above letter, and that it is possible that a memorandum may be issued similar to that issued with regard to white bread by the War Bread Medical Subcommittee of the Ministry of Food, and published in the JOURNAL of October 20th, 1917, p. 524.

DIABETES, STARCH, AND SUGAR.

SIR,—Dr. R. T. Williamson draws attention to the part played by the consumption of sugar in the causation of diabetes mellitus. Are we to conclude that abundance of sugar is more likely to induce this disease than abundance of starch? Needless to say, this is a point of practical importance.—I am, etc.,

London, W., Feb. 12th. HARRY CAMPBELL.

TONSILS AND ADENOIDS.

SIR,—From an extremely large experience as operator and observer Mr. Davis (BRITISH MEDICAL JOURNAL, January 26th, 1918) concludes that "the results of operations in the carefully selected and well-marked cases are excellent." He endorses the general preference of the surgical world for tonsillectomy over tonsillotomy, and he recommends the careful examination and selection of operation cases, and that an attempt should be made to ascertain and eliminate the cause of the condition under observation before the question of operation is finally settled.

The importance of his final recommendation has struck me very forcibly during the last two years in the examination of nearly 10,000 school children. The past records of school-child examination are more or less carefully preserved, but in the case of most children now examined above the "infant" age the records of one or more previous medical examinations are usually available for comparison, and I am surprised to find what a large percentage of children had tonsils enlarged in infancy of which no trace remains, in whom also there is no visible trace or verbal record of any operation having been performed. Hence a large proportion of enlarged tonsils disappear from natural causes—possibly from cessation of embryological function, as in the thymus gland, or from the proportionally smaller labours they are put to, as barriers to infective invasion, when the milk diet of infancy is replaced by other forms of food, and the fragile milk teeth by the more durable second dentition.

What the percentage of "vanished" tonsils may be to those now present matters little, but the fact that a great many do disappear naturally punctuates Mr. Davis's plea for a period of observation and elimination of likely causes before proceeding to operate. Personally, I believe dental examination and treatment, widely carried out, would greatly reduce the volume of tonsillectomies.—I am, etc.,

ARTHUR W. HARE, M.B., F.R.C.S.E.,

Gateshead, Jan. 28th. Asst. Sch. Med. Offr., Gateshead.

A POSSIBLE RAILWAY DANGER.

SIR,—I should be glad to be allowed to draw attention to a recent railway accident the history of which brings into prominence a matter of interest to the medical profession. It happened in America and the man responsible for it was an engine-driver. Although under medical care, he was well enough to continue at work, but when driving a train he ran it past a series of danger signals and a number of lives were lost in the collision which ensued. It transpired that he had been treated with a medicine the ingredients of which included a soporific, and it was held that this was the direct cause of his failure to observe the signals.

There have been serious railway accidents in this country due to the default of drivers, and the reasons for experienced men failing in the essentials of their duty have remained obscure. They may or may not have been associated with the cause traced in the instance cited, but it will be permissible to suggest that patients among railwaymen concerned in the movement of trains, whether on the engine, in the guard's van, in the signal-box, or on the line of railway, should be warned of the danger involved in taking medicine of a soporific character in circumstances in which its effects might be experienced during a turn of duty.—I am, etc.,

February 4th. A RAILWAYMAN.

THE PAY OF TERRITORIAL R.A.M.C. OFFICERS.

SIR,—I desire to draw attention to the position of junior officers of the Territorial R.A.M.C. compared with that of officers in other branches of the R.A.M.C.

There is considerable difference between the pay of the Territorial and the temporary commissioned officer. At home the Territorial officer draws £100 a year less than the temporary commissioned officer, and this without regard to seniority. A captain of the R.A.M.C. with seven years' service is entitled to an increase of pay, and it might have been assumed that the Territorial captain who had completed that period of service would have received that small addition to his pay. But no; shortly after the outbreak of war an instruction was issued stating that the seven years' service meant mobilized service. The Territorial officer is entitled to a certain war gratuity which, after a time, is much the same as that given to the temporary commissioned officer. The latter has his pay made up to £500 a year by the addition of a bonus of £60 paid annually, whereas the Territorial captain, whose pay amounts to £282 17s. 6d., has to wait until the end of the war for his war gratuity.

At the beginning of the war, when units were being rapidly formed, many officers were promoted to field rank in order to complete establishments, and this in many instances was done without reference to merit or seniority. Captains in field ambulances and on the staffs of hospitals became majors and lieutenant-colonels, while others who remained with the combatant units to which they had been attached in pre-war days were passed over to France and served in the trenches with them, but the possibility of promotion was denied to them. Thus to-day there are many senior officers in the R.A.M.C. Territorial Force who are still captains, while their contemporaries, and in some cases their juniors, hold much superior ranks.

If a Territorial officer is sent to India the position is infinitely worse. His slightly increased pay scarcely exceeds the sum of his pay and allowances at home, and is much less than in France. He receives no allowances except the trivial "exchange compensation allowance," and this is being reduced by half; he receives no free quarters and no rations, and he is never allowed to go home unless the condition of his health renders him unfit for further service.

The remedies are obvious and simple. So far as pay is concerned the rate should be the same for both Territorial and temporary commissioned officers; or, if the Territorials must be on the same footing as the regulars, they should have the benefit of the slight increase of pay after seven years' commissioned, not mobilized, service; and there ought to be an additional increase to compensate for the pension the regular is earning, and the war gratuity should be paid annually.

A seniority list of all the Territorial officers should be drawn up, as has been recently done in the case of the more

highly paid Royal Engineers, and, other things being equal, strict regard should be had to that list.

An officer might be given an option, when the exigencies of the service permit, of serving in India for a definite period, and while there he should be provided with free quarters and rations, or an adequate allowance in lieu thereof.

The attention of Parliament should be drawn to the gross injustice and the unfair treatment meted out to the officers who had the misfortune to belong to the Territorial R.A.M.C. before August 4th, 1914.—I am, etc.,

Edinburgh, Feb. 7th. J. W. L. SPENCE.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

AT a congregation held on February 9th the following medical degrees were conferred:

M.D.—H. J. Gauvain, G. L. Keynes.

UNIVERSITY OF LONDON.

AT a meeting of the Senate on January 23rd a committee was appointed to inquire into the question of the admission of Dominions' soldier and sailor scholars medically unfit for further service to the university as internal students.

Regulations were adopted, to be in force during the war, by which external students passing the first examination for medical degrees Part I in December may be admitted to the second examination in the following March.

Studentships.—Candidates for the Lindley Studentship and the University Studentship in physiology, value £100 and £50 respectively, to undertake research in physiology, must send their applications to the Academic Registrar, from whom full particulars can be obtained, by April 30th and May 31st respectively.

PARLIAMENTARY REPRESENTATION OF UNIVERSITIES.

UNDER the new Reform Act the representation of universities has been increased by 6. The number of members now allotted is: Oxford, 2; Cambridge, 2; London, 1; Wales, 1; Durham, Manchester, Liverpool, Leeds, Sheffield, Birmingham and Bristol, 2; Aberdeen, Edinburgh, St. Andrews and Glasgow (together), 3. The principle of proportional representation is introduced for universities represented by two or more members. The Irish University representation, like the other representation of Ireland, remains unaltered.

The Services.

THE AUXILIARY R.A.M.C. FUNDS.

Officers' Benevolent Branch.

WE have received a letter from Major A. C. Farquharson, R.A.M.C.(T.F.), a member of the Committee of the Auxiliary R.A.M.C. Funds, but as it is not quite self-explanatory we propose, with his sanction, to explain the situation to which he wishes to call attention.

In the first place it is to be remembered that there are two funds managed by the same committee—the one for the benefit of officers, the other for that of non-commissioned officers and men. The remarks we have to make refer only to the fund for officers (the Officers' Benevolent Branch), which is for the benefit of the Special Reserve, Territorials, and those holding temporary commissions in the R.A.M.C. The funds were established at a meeting, under the chairmanship of Sir Alfred Keogh, on June 26th, 1916. A scheme was submitted to this meeting, which has since been modified in certain respects, the most important being that the original limitation to orphans has been altered so as to allow assistance to be given to the children of officers totally disabled. The rule that orphans of officers who are non-subscribers to the fund shall have no claim on its benefits appears to be maintained and would, we assume, apply to the children of disabled officers.

An account of the work of the Officers' Branch Fund down to the end of 1917, furnished to us by the honorary secretary, was published in the JOURNAL of January 12th, p. 71. The first annual general meeting was held on October 26th, 1917, but we were unable to give a report of the proceedings at the time as reporters were not admitted. We learn that the accounts made up to September 30th, 1917, showed that a sum of a little over £4,000 had been received in subscriptions and donations, and that of this sum £3,800 has been invested in new War Loan at 5 per cent. As already reported, the annual meeting approved grants amounting to £160 to the orphans of four officers with temporary commissions and two officers in the R.A.M.C.(Territorial). We find that at this meeting Major W. T. F. Davies, D.S.O., M.D., urged that an appeal should be made to the profession throughout the United Kingdom, a suggestion which we had ventured to put forward on June 24th, 1916, when the Fund was about to be formed. We gather that at the annual general meeting Major E. H. T. Nash (T.C.) also expressed the view that an appeal should be made to others not serving in the Auxiliary Branches of the Corps. In speaking on this point, Major Farquharson said that his own experience of an effort in this direction at Christmas, 1916, had not been encouraging; he had sent out a large number of letters but had only received £6 from civilian practitioners engaged in part-time duties in the Northern Command and not connected with hospitals. The note of his speech in the report of the first annual general meeting issued by the Funds has given the erroneous impression that this was the whole result of his appeal. The response from officers was good; he received in donations and subscriptions some hundreds of pounds, and the late secretary of the Fund acknowledged that if all the other Commands had done (at that time) half as well as the Northern Command the success of the Fund would have been assured. "The R.A.M.C. did splendidly, the civilian practitioners did not." Major Farquharson goes on to deprecate optimistic and fanciful estimates of the amount of donations that will be expected.

The sum received in donations down to September 30th, 1917, appears to have been £2,548, and we gather that nearly the whole of this has been in gifts from officers holding commissions in the Auxiliary Branches R.A.M.C. The number of subscribers in 1916 (six months) was 503; at the end of 1917 it had been increased to over 1,200.

EXCHANGES.

Medical Officer in charge of a cavalry unit in France desires exchange with medical officer serving in England.—Address, No. 599, BRITISH MEDICAL JOURNAL Office, No. 429, Strand, W.C.2.

Medical Officer in charge of a motor transport unit in France desires exchange with medical officer serving in England.—Address, No. 600, BRITISH MEDICAL JOURNAL Office, No. 429, Strand, W.C.2.

Obituary.

BY the death of Dr. THOMAS LAFFAN, Cashel, co. Tipperary, which occurred in his 76th year, an able and many-sided personality has been lost to the profession in Ireland. A son of the late Mr. D. Laffan, solicitor, Dr. Laffan was a well-known politician, philanthropist, and controversialist. He was formerly demonstrator in anatomy in the Catholic University, Dublin. Old students will recall the strenuous and successful fight he made for the conferring of degrees (*ad eundem*) on graduates of the old Catholic University by the Senate of the National University, he himself being one of the first recipients. He contributed many articles to the French and English medical press, and was the author of an essay on the grievances of Poor Law medical officers. He was a past president of the South-Eastern (Ireland) Branch of the British Medical Association, and for several years acted as its representative at the Annual Representative Meeting, where he frequently enlightened and amused, by his contributions to debate, his British colleagues. He was surgeon to the Cashel Infirmary, and enjoyed a lucrative practice. He was a member of the Cashel Urban Council. As a speaker and writer of independent thought on Irish National affairs he was also widely known.

WE regret to record the death, on February 7th, of Mr. W. H. JALLAND, of York, after a long illness. He was born at Nottingham, and received his medical education at Guy's Hospital, taking the diplomas of M.R.C.S. in 1870, L.R.C.P. in 1871, and F.R.C.S.Eng. in 1873. After holding the offices of house-surgeon and resident obstetric officer at Guy's Hospital, Mr. Jalland joined Mr. W. D. Husband, of York, who was a very active member of the British Medical Association. Mr. Jalland became a member of the Association, and retained his membership throughout the whole of his professional career. He was president of the Yorkshire

Branch in 1894, and vice-president of the Section of Surgery at the annual meeting at Sheffield in 1908. He was for over thirty-four years surgeon to the York County Hospital, and for some years a member of the house committee. On his retirement in 1914 from the office of surgeon the committee elected him consulting surgeon, and recorded its appreciation of the value of his professional work for the hospital, and the indefatigable energy he showed in assisting it financially, both by his own gifts and by his influence with others. He was surgeon to the 1st Volunteer Battalion West Yorkshire Regiment (York Rifles) for over seventeen years, and retired with the rank of surgeon-major. He was much interested in ambulance work, was president of the York centre and a Knight of Grace of the Order of St. John of Jerusalem. Since the war began he had given much time to the military hospital in Haxby Road, of which he was surgeon. Mr. Jalland was a J.P. for the North Riding of Yorkshire, and deputy lieutenant for the West Riding; he was sheriff of York in 1896. He is survived by his widow, a daughter, and a son; another son, a lieutenant in the East Yorkshire Regiment, was reported missing and subsequently presumed killed after the Suvla Bay landing.

SURGEON-GENERAL SIR ADAM SCOTT REID, K.C.B., Indian Medical Service (retired), died of pneumonia in a nursing home in London on February 2nd, aged 69. He was born on April 4th, 1848, educated at Edinburgh University, where he graduated M.B. and C.M. in 1869, and entered the I.M.S. as assistant surgeon on March 31st, 1872. He became surgeon on July 1st, 1873; surgeon-major on March 31st, 1884; surgeon-lieut.-colonel on March 31st, 1892; brigade-surgeon-lieut.-colonel on June 9th, 1897; full colonel on May 19th, 1899; and surgeon-general on June 16th, 1902; and retired on March 25th, 1907. He served in Afghanistan in 1879–80 (medal); in the Chin-Lushai campaign on the North-East Frontier of India in 1889–90, with the Burma column (medal and clasp); and in the North-West Frontier campaign of 1897–98, when he took part in the relief and defence of the Malakund, in the relief of Chakdara, and in the operations in Bajaur and in the Momund country, was mentioned in dispatches, and received the medal with two clasps. On his promotion to the administrative grade he was posted as administrative medical officer and sanitary commissioner of the Central Provinces, and during his tenure of that office initiated and presided over a conference on malaria at Nagpur in 1901. In February, 1902, he was appointed inspector-general of civil hospitals in the Punjab, and on June 16th, 1902, surgeon-general of the Punjab Command, holding that post till his retirement. Except for the three years May, 1899, to June, 1902, during which he held civil administrative appointments, his whole service was spent in military employ. He was granted a good service pension on December 2nd, 1901, was made a C.B. on June 26th, 1903, and promoted to K.C.B. on June 23rd, 1911.

THE death occurred at Catcliff, Bakewell, Derbyshire, on January 15th, of Dr. PHILIP SHELDON FENTEM. He was the son of the late Thomas Fentem, F.R.C.S.Eng., and was born at Eyam on November 8th, 1841. After being apprenticed to his father he proceeded to Edinburgh. He took the diploma of M.R.C.S.Eng. in 1863, and the degree of M.D.Edin. in 1865. He settled in Bakewell in 1865. He was the first M.O.H. for the Urban District of Baslow and for the Northern Division of the Bakewell Rural District, and afterwards was appointed M.O.H. for the whole district. He retired from the post of district medical officer and public vaccinator for Bakewell District in 1916, having held these offices for forty-seven years. He was actively interested in ambulance work, and was an honorary life member of the St. John Ambulance Association. He took an active share in local affairs as churchwarden, member of the Local Board, and one of the original Governors of Lady Manners School, Bakewell. Dr. Fentem belonged to the best type of general practitioner. His quiet courage enabled him to meet the difficulties of rural practice, but he was perhaps at his best as an obstetrician. Sir James Young Simpson advised him to remain in Edinburgh and specialize in that work, but the charm of a country life called him. He made a fine collection of old oak furniture, and on that subject was an authority. Though of a retiring disposition, all knew that behind his reserve was a kind and generous heart, and many sought his advice in their troubles, not as a medical practitioner only, but as a true friend. He was for many years a member of the British Medical Association, which his father had joined soon after its inception. He married the daughter of Mr. Robert Mackay, of Fountain House, Loanhead. She died in 1909. He leaves one son, with whom he has been in partnership many years, and two daughters, to mourn his loss.

Medical News.

DR. E. RYAN, J.P. (Crumlin), has been elected a member of the Monmouthshire County Council.

DR. S. RIDEAL, public analyst for Chelsea, has been elected president of the Society of Public Analysts.

AT a meeting of the medical profession in Guildford, held on December 29th, 1917, it was unanimously decided that it was necessary that the fees for medical attendance in Guildford and district must be raised.

A QUARTERLY meeting of the Medico-Psychological Association of Great Britain and Ireland will be held at the Maudsley Hospital, Denmark Hill, London, S.E., on Thursday next, at 2.30, when Lieut.-Colonel F. W. Mott, M.D., F.R.S., will read a paper on war psychoses and psychoneuroses, and demonstrate the microscopic changes in the brains of fatal cases of shell shock and gas poisoning. It is hoped also that Professor Marinesco of Bucharest will give a microscopic demonstration.

INFANTILE beriberi due to breast-feeding by mothers with the disease in a latent or declared form has been recognized in two forms: (*a*) the chronic aphonic lasting for several weeks, with a hoarse voice and a dilated and hypertrophied right heart, and (*b*) the acute pernicious cardialgic, lasting from several hours to two days, and characterized by intense and incessant crying. In addition, J. Albert (*Philippine Journ. Sc.*, 1917, vol. xii, p. 166) briefly describes the pseudo-meningitic form in infants of five to six months, or somewhat older than the ordinary cases. Ptosis giving the infants an idiotic expression is a prominent feature; drowsiness, retraction of the head, and upward rotation of the eyes also occur. The right side of the heart is shown by *x* rays to be enlarged. In two out of the three cases there was a history of previous aphonia, thus suggesting that the meningeal symptoms were due to a second attack of beriberi. The cases were rapidly cured by the extract of tiqui-tiqui, which is a specific for infantile beriberi.

THE report presented and adopted at the annual meeting of the Scottish Poor Law Medical Officers' Association early this month stated that it had not been necessary to warn any applicant against accepting an appointment because the information supplied by the secretary, Dr. W. L. Muir, 1, Seton Terrace, Glasgow, as to the area, population, difficulties of locomotion, etc., had been sufficient to deter applicants. The claim made upon the Highlands and Islands Medical Service Board was for a guarantee of a dwelling-house, rent and taxes free, expenses of a professional nature, and a free income of not less than £300 a year. It was thought that it would be well that the medical officers should formulate their grievances and appoint a deputation to interview the Board. The position created by the action of some parish councils in adding the whole of the old age pensioners to the list of medical officers was under consideration. A suggestion had been made that a capitation grant of nine shillings for medical attendance and medicine should be paid by the parish council for each old-age pension case.

THE current number of the *Nordiskt Medicinst Arkiv* (Bd. 50, Heft 3-4) presents a remarkable feature in the number of papers which are written in the English language. It has been a rare occurrence hitherto to note a single paper in English. Of eleven papers, nine now appear in English and two in German. The *Nordiskt Archiv* has always maintained a high standard for the contributions it accepted, and this somewhat new departure will tend to make it more generally read and appreciated among the English-reading races, and more specially among the surgeons of the British empire and America. The current number contains articles upon the surgical treatment of the reflex dyspepsia associated with chronic constipation, the examination of gall stones by *x* rays, the prognosis of otogenic sinus phlebitis, septic lung diseases in connexion with clearing out of teeth, on sliding hernia,

appendicitis and the functions of the gall bladder. This delicate expression of cordiality in the Scandinavian countries towards the English language may, perhaps, be taken as the expression of sympathy and encouragement in our fight for what is right and true and free.

HERMANN KÜTTNER (*Muench. med. Woch.*, August 14th, 1917), consulting surgeon in the German navy, has drawn attention to the fact that the explosive action of projectiles in the body is not confined to the rifle bullet. This effect of the rifle bullet had, he says, in recent wars been the cause of numerous mistakes and false accusations, but omits to confess that the Germans floundered heavily into this pitfall early in the present war. Küttner recognized that fragments of shells and bombs may inflict a single wound of entry and numerous wounds of exit. He has seen a whole series of such cases, and he believes that they are not rare. He has seen not only single wounds of entry and multiple wounds of exit inflicted by shell fragments, but with the *x* rays has demonstrated the presence of many fragments of shell in the body, though there was only one wound of entry. He reproduces photographs of two metal boxes for holding a gas mask outfit which had been struck by fragments from aërial bomb. Both boxes show a single hole of entry, while on the opposite side there were many large and small holes of exit. An analysis of the splinters from the bombs revealed no intrinsic explosive qualities, only nickel molybdic steel.

FROM several thousand examinations during the last three years J. A. Johnson (*Phillipine Journ. Sc.*, 1917, xii, Sect. B., 115) has been led by its varying morphological appearances to classify *B. leprae* into four groups: (1) The classical, common in comparatively recent macular and nodular lesions, and occasionally seen in old lesions becoming active again. (2) Fragmentary (degenerative) with (*a*) coarse, (*b*) fine granules; the granules are probably evidence of degeneration, as the fragmentary form is rare in active lesions and common in old inactive lesions, and in patients treated with chaulmoogra oil. (3) Solid form, (*a*) long, (*b*) short, is rare, and is found in the ulcer on the septum nasi, and at the margin of chronic ulcers. (4) Nocardial or streptothricial, non-acid-fast, the parent form of the others. Stricker and others have insisted on the diagnostic value in doubtful, especially anaesthetic, cases of *B. leprae* in the nasal mucus. Johnson found them in the nasal mucus of 12.9 per cent. of known anaesthetic lepers, that is, the cases in which their presence is likely to be of diagnostic value, and in 52 and 43 per cent. of known nodular and mixed lepers. He concludes that nothing is gained by examination of the nasal mucus in the presence of definite clinical evidence of leprosy, and that in the absence of clinical signs, acid-fast bacilli in the nasal mucus should not be regarded as prima facie evidence of leprosy. He attaches much importance to the examination of the blood during febrile paroxysms in doubtful cases.

THE report of the Government Veterinary Bacteriologist, Southern Rhodesia, for the year 1916–17, compiled by Mr. Bevan, M.R.C.V.S., the Government bacteriologist, states that over 2,500 smears and specimens from the field and almost as many from animals under experiment at the laboratory were examined. Of the former, 120 showed the parasites of African coast fever, 125 the parasites of other diseases, and 33 specimens of serum the presence of the virus of contagious abortion in cattle. It is stated that the more general application of the principle of "short-interval dipping" has to a large extent reduced the losses due to plasmoses of cattle. In practice there would appear to be three stages in the development of a herd: (1) The pioneer stage, when imported animals cannot be used for the improvement of the nucleus of native cattle unless inoculated, and when a heavy mortality of young stock must be expected from redwater and other diseases. (2) A second stage, when by systematic dipping the veld becomes tick-free and imported stock can be introduced with impunity, and the young progeny grow up and thrive free from disease. (3) A third stage, when animals bred upon such areas being susceptible to tick-borne diseases cannot be exposed to tick-infected veld, so that the market for them becomes restricted. Until, therefore, the practice of systematic dipping becomes universal, there are certain disadvantages associated with this method. There still exists the necessity of a satisfactory method of inoculation for the protection of imported bulls exposed upon infected veld, and efforts have been made during the last ten years to discover a means of conveying immunity. An epidemic amongst pigs was found to be due to a trypanosome of the *T. pecorum* group. The administration of antimony oxide had no apparent influence upon the course of the disease.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

The telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London*; telephone, 2631, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Medisecra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES AND ANSWERS.

ULSTER MEMBER.—A M.P.S.I. cannot permit an unqualified assistant to dispense medicine except under the proper supervision of a fully qualified chemist. We would advise our correspondent, if his chemist should persist in ignoring his representations in this matter, to communicate with the Pharmaceutical Society (Ireland), 67, Lower Mount Street, Dublin.

INCOME TAX.

"LOCUM" inquires as to the proper method of assessment of fees received while acting for a local authority on terms of weekly notice; and as to the position of the tax officials who are sending communications through a friend's address, given by our correspondent to them some time ago.

*** All salaries, fees, wages, etc., paid by local authorities are assessable under Schedule E on the basis of the current year's receipts; at the same time, if our correspondent has been acting temporarily at various places during this financial year and in the three previous years, the authorities would, we believe, deal with the whole matter on a three years' average. In the circumstances we do not see what right the assessor for the town in which our correspondent's friend resides has to demand his present address, but we suggest that, having used that address, our correspondent has probably brought himself on to the assessor's list—in fact though not in law—and that the assessor's inquiry is directed towards obtaining a more recent address to which the matter might be transferred; if so, the satisfaction of the request would seem desirable from all points of view.

B. G. R. C. is employed by the Ministry of Munitions at a Government factory hospital. He inquires whether he is taxable at the civilian rate or at the "reduced rate chargeable on Government pay."

*** Our correspondent has in mind the special rate applicable to army and navy pay, to which he is not entitled. There is no difference between the ordinary civil rates of tax and the rates chargeable on Government salaries and fees other than army and navy pay.

LETTERS, NOTES, ETC.

HABIT AND CRAVING.

DR. ARTHUR KING (Wareham) writes: In your leading article on veronal (February 9th) there is a small point which is less hair-splitting and more practical than at first appears. Sir James Mackenzie, I take it, in effect says there is no such thing as a veronal habit because there is not the same craving as with morphine and the bromides, which produce their own peculiar, attractive, dreamy quiet, and that veronal is a means only to an end, while morphine has its thraldom in its means—that without craving there is no habit. Observation in not a few instances has suggested that craving and habit can be things apart, and that habit often persists after longing has died. The original act may be, no doubt, the result of desire, but every act tends to repeat itself, and, if not unduly complex, is performed automatically. "The cause of drunkenness is drink" is a statement of bald fact. If repeated vicious acts have not craving as a mainspring, the patient's cure should be almost simple, but to burke or scotch desire involves a more difficult problem.

IMPETIGO COMPLICATING SCABIES.

DR. FRANCIS CHILD (Princess Christian Military Hospital, Englefield Green) sends a letter which confirms the observations made by Major Henry MacCormac, R.A.M.C., in a paper published in the JOURNAL of February 2nd (p. 144), to the effect that many men who arrive from France with a diagnosis "impetigo" or "I.C.T." are in reality suffering from scabies, the lesions occurring frequently in parts of the body not usually associated with itch. In such cases patients who have been under treatment for impetigo for weeks will generally heal rapidly without recurrence, under treatment by sulphur instead of mercurial ointment.

ILL-TREATMENT OF PRISONERS IN GERMANY.

MRS. SONIA E. HOWE (St. Luke's Vicarage, Finchley, N.3) asks us to state that Dr. Basilevitch, one of the 110 Russian doctors who have returned from captivity, desires to be put into touch with British colleagues who, like himself, have witnessed German ill-treatment of prisoners. As no British bishop or Russian Red Cross sisters are allowed to visit the camps in which the greatest horrors are perpetrated medical men alone are in a position to give authenticated proofs of the accusations. Dr. Basilevitch has written a book of evidence collected by himself and his colleagues, which will be translated into English. Any British medical man who has been in enemy captivity is asked to communicate with Mrs. Howe.

THIRST AT SEA.

MR. MORLEY ROBERTS writes: In 1910 the idea occurred to me that death at sea from thirst when there was no fresh water could at any rate be postponed, and possibly altogether avoided, by rectal injections of pure sea-water. I founded the view on the fact that when sea-water is actually drunk it sets up reverse peristalsis, locks up the pylorus in a tonic spasm such as occurs in acute abdominal cases, and hence is not absorbed; while hypotonic and isotonic injections, though unpleasant to drink and likely to cause vomiting, serve every purpose in subduing thirst. Thirst is in practice thus avoided when malignant disease or obstruction of the oesophagus prevents deglutition. I considered that the salines not needed by the blood plasm would be excreted by the kidneys, and that the heavy work thrown on them for short periods would be unlikely to damage them. I communicated these opinions to many medical men, and even to one medical paper—not the BRITISH MEDICAL JOURNAL—in 1911, but was unable to get them published without some proof. One well-known physiologist who thought them rather interesting suggested I should try the experiment on myself. This I did not do, for reasons with which I need not trouble you. I am, however, now in a position to quote evidence that my theoretical views were sound, and Mr. R. Graham, for whose bona fides many well-known men will vouch, has kindly permitted me to adduce it. The following are the facts:

While returning to England from the United States in 1916 he undertook a fast, and while fasting injected daily two gallons of pure sea-water. During the first five days he did not take anything whatever to drink, although on the fourth and fifth day he washed his mouth out with ordinary water. He did not feel in the least thirsty till the sixth day, when he took half a tumbler of water. Such thirst as he experienced was, however, very slight. On the seventh day he drank one and a half glasses of water, although he felt he could have gone without had he chosen to do so. During this period his pulse was normal, his general condition good, his strength well maintained, and though the injections resulted in the usual evacuation, there was no tendency to diarrhoea or any other disturbance. On the eighth day he resumed his normal life. I think there can be no doubt that these facts are highly important. Even this last year, owing to the U boat campaign, English seamen have died of thirst. With a Higginson syringe as part of a boat's normal equipment, I submit that such disasters could be avoided or, at the very least, postponed, thus affording castaways a better chance of being picked up.

THE same post brought us a letter from Lieut.-Colonel GEO. WHERRY, M.Ch., F.R.C.S., R.A.M.C.(T.), suggesting that "the injection of sea-water into the lower bowel, if slowly done, would give some relief and prolong life in such cases. We use saline injections in our hospital wards with great advantage and the apparatus needed is of a simple kind:—a glass syringe or a rubber tube to be used as a siphon; the nozzle and bowl of a tobacco pipe in emergency might answer. As I cannot gather from any navigator that the plan has ever been tried, I make the suggestion as above for the slow injection of sea-water as an enema for absorption."

TREATMENT OF VINCENT'S ANGINA.

DR. CASSIO DE REZENDE (Guaratinguetá, S. Paulo, Brazil) writes to express his agreement with Dr. Scargill as to the good effects of the application of ordinary tincture of iodine in Vincent's angina. Of late the following course of treatment has seemed to me to be still more efficient: (*a*) Three or four times a day to gargle with a solution of hydrogen peroxide; (*b*) after every gargle to apply to the diseased spots a mixture of quinine hydrochloride with an aqueous solution of methylene blue (3 or 5 per cent.). He has followed the same line of treatment in pyorrhoea alveolaris.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

THE following subscriptions to the Fund have been received during the week ending February 11th:

	£	s.	d.
Dr. Norman Walker ...	5	5	0
Sir Alfred Pearce Gould (£5 for advertising, £5 for relief)	10	0	0
Dr. Alfred Cox	1	0	0
Dr. W. Black Jones ...	1	1	0
Mr. J. E. H. Watson ...	1	1	0
Per Sir Rickman J. Godlee	2	0	0
Dr. David Rice	3	0	0
Dr. J. T. Rogerson ...	2	2	0
Dr. Chas. J. Lathbury ...	2	2	0
Dr. T. W. Robbins ...	1	1	0
Mr. Charles Ryall ...	26	5	0
Dr. Herbert Menzies ...	2	2	0
Miss Marjorie Monkhouse	5	0	0
Dr. Cameron Kidd ...	2	2	0
Dr. Hale White	5	5	0
Mrs. Dunphie	5	0	0
Dr. Hyla Greves	3	3	0
Dr. A. Hill Joseph ...	2	2	0
Dr. H. B. Williams ...	2	2	0
Dr. Uhthoff...	5	5	0
Captain F. W. Jones, R.A.M.C.	1	1	0
Dr. Herbert Lucas ...	1	1	0

The Executive Committee, at its meeting on February 7th, resolved to issue a circular letter to medical men and pharmacists making an urgent appeal for subscriptions to the Fund. The allocation by Sir Alfred Pearce Gould of part of his subscription towards the necessary expenditure on this circular draws timely attention to the fact that its cost must be considerable.

Subscriptions to the Fund should be sent to the Treasurer of the Fund, Dr. H. A. Des Vœux, at 14, Buckingham Gate, London, S.W.1, and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

ON NATIONAL RATIONING.

IN a letter dated February 6th, 1918, Dr. John L. Spiers of Gateshead writes: "I take most emphatic exception to the statement in your leaderette on rationing in this week's BRITISH MEDICAL JOURNAL asserting that the butchers' wealthier customers consume proportionally more meat than the working classes. From careful observations I am prepared to assert that the case is almost exactly the opposite."

*** The increased proportional consumption of meat with rising income and social position is shown in all collections of data yet published (for instance, in Mr. Rowntree's York families, the weekly "man" consumption was 2 lb. 4 oz. in poor families and 4 lb. 5 oz. in servant-keeping families). As we have repeatedly pointed out, the consumption of meat by the hand-working classes increased last year, but, for obvious economic reasons, the general proposition is, we think, still valid. Indeed we have never before seen it challenged.

DETERMINATION OF SEX.

DR. T. S. SHELDON (Chester) writes: The following, which is a footnote in vol. i of Lecky's *History of Rationalism in Europe*, may be interesting to some of your readers: "Melancthon deals, in a tone of the most absolute assurance, with the great question of the cause of the difference of sex: 'Mares nascuntur magis in dextrâ parte matricis, et a semine quod magis a dextro testiculo oritur. Fæmellæ in sinistrâ matricis parte nascuntur.' (Melancthon, *De Animâ*, p. 420.) This theory originated, I believe, with Aristotle, and was afterwards repeated by numerous writers."

THE STERILIZING OF HYPODERMIC SYRINGES.

DR. F. E. TAYLOR (London) writes: Dr. Lyon Smith's method of sterilizing hypodermic syringes (January 26th, 1918) is described as simple and convenient. The following is also a simple, rapid, and convenient method. I have given several thousand hypodermic injections with syringes so treated, without a single failure to maintain asepsis. The barrel is withdrawn and syringe and barrel are kept immersed until required in a two per cent. solution of bacterol, which forms a clear transparent non-greasy solution. Steel needles are similarly kept immersed in phenol-xylol, consisting of one part of crystallized phenol dissolved in two parts of xylol, in which the needles do not rust. To remove the phenol-xylol before use, the needles are rinsed through with alcohol and ether (equal parts), and then with the two per cent. bacterol in the vessel in which the syringe is kept.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	6	0
Each additional line	0	0	9
Whole single column	4	0	0
Whole page	12	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.